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Hart, Schaffner & Marx Prize Essays

XLIV

A FINANCIAL HISTORY OF THE AMERICAN AUTOMOBILE INDUSTRY

A FINANCIAL HISTORY OF THE AMERICAN AUTOMOBILE INDUSTRY

A STUDY OF THE WAYS IN WHICH THE LEADING AMERICAN PRODUCERS OF AUTOMOBILES HAVE MET THEIR CAPITAL REQUIREMENTS

BY

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TO

FRED M. TAYLOR

THIS BOOK IS AFFECTIONATELY

DEDICATED

PREFACE

THIS series of books owes its existence to the generosity of Messrs. Hart, Schaffner & Marx, of Chicago, who have shown a special interest in trying to draw the attention of American youth to the study of economic and commercial subjects. For this purpose they have delegated to the undersigned committee the task of selecting or approving of topics, making announcements, and awarding prizes annually for those who wish to compete.

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Any essay submitted in Class B, if deemed of sufficient merit, could receive a prize in Class A.

The present volume, submitted in Class A, was awarded First Prize.

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AUTHOR'S PREFACE

Our knowledge of the economic processes, long summarized in a valuable body of 'principles' or 'laws,' has experienced the promise of much enrichment in recent years as the result of a host of inductive studies of concrete economic phenomena. Such studies need not aim at new large generalizations. Apart from their value in special fields, their worth is amply established if they but serve to refine, to clarify, or to enrich by specific illustration, the body of economic theory that has thus far been the fruit of *a priori* reasoning most largely. The aim of the present study is to take a place with countless other empirical investigations, the joint product of which, it is hoped, will be an expansion of our knowledge of the economic processes.

One of the outstanding characteristics of contemporary industry is the striking mobility of economic resources. The enormous advances of the past century in the means of communication and in the arts and sciences have greatly accelerated the rate of economic change. New products and new methods of production appear almost daily; older lines change rapidly in importance. Consumption habits and industrial practices, alike, display a remarkable flexibility, ready ever to stimulate and to accommodate the new and to modify relations among the old.

Changes in industry appear to take place spontaneously, for they are brought about by thousands of individuals and groups, each acting more or less independently of others, and each motivated and guided by the hope of profits. Initiative in business is controlled by no central institution, but is open to all who can command the necessary productive resources. This initiative, and hence, the resources, are attracted to all lines of enterprise that offer relatively large returns. The existence of different and changing rates of profits in differ-

ent fields operates constantly to regulate the employment of productive resources by causing them to be diverted from less to more profitable channels. In consequence, the prevailing distribution of productive agents among the various industries, products, and services is always tentative, and is achieved by a process of constant readjustment.

While changes in industry are motivated chiefly by profits, they are largely conditioned by the actual readiness of land, labor, capital, and business initiative to shift from one employment to another. Perfect mobility in these agents is an important postulate of traditional economic theory; and the practical limitations upon such mobility are responsible for various apparent anomalies in the world of competitive business, such as continuing discrepancies in the comparative prices, wages, profits, and interest rates of different countries, sections, trades, and industries. In modern industry, important changes are peculiarly conditioned by the mobility of capital. The large-scale industrial technique of our times requires the employment of enormous quantities of resources for mediate uses — for tools, machines, buildings, products in process, reserves against fluctuations, etc. The commercial production of an important new good, the automobile, for example, is conditioned, therefore, by the availability of free economic resources to be employed for such mediate uses in its connection; is conditioned, in other words, by the availability of free capital.

The nature of capital as an economic category has been somewhat variously conceived and far more variously articulated; but the purposes of the present study do not require an extended examination of the theoretical content of this concept. In accordance with a prevailing view, it is sufficient to say that capital in general is best conceived as consisting of economic resources devoted to mediate or instrumental uses, as contrasted with resources employed for current consumption; and that, for some purposes, capital may be regarded as a fund of economic goods permanently dedicated to mediate employment.

The availability of capital for new or expanding industries may be said to depend, in general, upon the rate at which the supply of capital is increased and upon the efficiency of the institutions and practices that bring together owners of capital and entrepreneurs. These broad conditions depend in turn upon many other factors, some of which are frequently ignored. Many writers, for example, are content to discuss the processes of capital mobility solely in terms of the liquid funds marshalled and directed by the organized financial markets and by business men. In so doing, they suggest a simplicity and directness that are not easily observable in the facts of industry. Capital in the form of money is, indeed, capital *par excellence*, for in this form it is synonymous with the power to employ virtually all kinds of economic resources in 'roundabout,' 'time-consuming' methods. At any given moment, however, the bulk of a community's capital is not to be found in the form of money, but in the form of concrete capital goods. How capital so embodied is constantly redistributed to meet the changing needs of industry, and the factors that variously influence this mobility, constitutes a set of processes that transcend the operations of the money markets.

The purpose of the present study is to illustrate several aspects of these processes by reference to the history of the American automobile industry. Stated more broadly, it is purposed to answer, for a single industry and within restricted scope, the following question: Given the existing organization of industry, and given a new important product, just how have the producers of this product come to command the economic resources required for its extensive production?

In confining our attention to the American automobile industry, we do not presume that its development has been perfectly typical of that of all new industries. The automobile industry, nevertheless, lends itself peculiarly well to the purposes of this study. In the first place, the industry is scarcely thirty years old. Its birth and development, there-

fore, have taken place under the most modern conditions of financial and industrial practice. In the second place, the industry has attained a position of great importance. Whereas, prior to 1899, its operations were too insignificant to receive separate notice in the Census of Manufactures, in 1925 it ranked first in value of products among all American manufacturing industries. Finally, unlike the characteristic financing of other large-scale developments of recent years, such as public utility enterprises, the growth of the American automobile industry has taken place without great reliance upon capital derived from the public sale of securities. A study of the means whereby its expanding capital requirements have been met should direct attention, therefore, to the less overt and less recognized processes of capital mobility.

Our attention will be limited largely to a consideration of the sources and growth of the capital employed by eight of the leading producers of automobiles in the United States. Little attempt will be made to examine the sources of the purchasing power and capital of consumers of automobiles; or of the capital employed by producers of raw materials and finished components purchased by automobile manufacturers; or of the capital employed by selling and distributing companies, gasoline and oil companies, garages, and other lines of enterprise ancillary or incidental to the production and use of motor vehicles. In thus delimiting the scope of our study, we nevertheless leave for examination a very large industry, the rapid provisioning of the capital of which should offer abundant empirical illustration of the chief ways in which a growing industry may finance its expansion.

In prosecuting the present investigation, I have been forced to turn most largely to primary sources: there is a marked paucity of published data of comprehensive scope dealing with the automobile industry; and only in recent years, with the growth of widespread ownership of the securities of automobile companies, have financial and operating data been made at all accessible. As against the difficulties of investigation, on the other hand, I have experienced

the most generous treatment at the hands of the leading officials of the companies included in this study. It is due to their aid in allowing me access to various original or official records that this study has achieved such measure of adequacy as it may be judged to have attained. Special mention is due to Messrs. Pierre S. Du Pont, Meyer L. Prentis, Thomas S. Merrill, Frank F. Kolbe, A. B. C. Hardy, A. P. Warriner, and Howard Chapin, of the General Motors Corporation; W. H. Alford and the late James J. Storrow, of the Nash Motors Company; Roy D. Chapin, A. Barit, and E. W. Sheldrick, of the Hudson Motor Car Company; Alvan Macauley, M. A. Cudlip, and A. C. Bennett, of the Packard Motor Car Company; and Ransom E. Olds and George L. Brown, of the Reo Motor Car Company, among others, for such courtesies. Messrs. Norman G. Shidle and K. W. Stillman, editors of 'Automotive Industries'; O. P. Pearson, statistician of the National Automobile Chamber of Commerce; Senator James Couzens, formerly vice-president of the Ford Motor Company; and the Detroit and Washington representatives of the Automotive Division of the Bureau of Foreign and Domestic Commerce, have given me valuable assistance. Specific acknowledgment of the aid of these and other individuals, as of published sources, is made in the footnotes wherever possible.

The original draft of this essay was accepted as a doctoral dissertation at the University of Michigan in 1925. The subject had been suggested by Professor David Friday, and the study was worked out under the direction of Professors E. E. Day, Fred M. Taylor, Charles H. Cooley, I. L. Sharfman, and R. L. Masson. The aid of these and other teachers and colleagues at Michigan is gratefully acknowledged. Since its submission in the Hart, Schaffner & Marx competition in 1926, the study has been expanded and rewritten under the editorial supervision of Professor Sharfman, who has thus added to my numerous obligations to him. I am indebted to Mr. Frank F. Kolbe, assistant treasurer of the General Motors Corporation, for his critical reading of the original

manuscript, and to my colleague, Professor Chester F. Kuhn, for reading the proof of the present essay.

LAWRENCE H. SELTZER

DETROIT, MICHIGAN
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A FINANCIAL HISTORY OF THE AMERICAN AUTOMOBILE INDUSTRY

A Financial History of the American Automobile Industry

CHAPTER I

INTRODUCTORY

THE swift rise of the motor vehicle from a crude and expensive toy to an important element in the everyday living of millions of persons is a striking chapter in recent industrial history. Little more than twenty years ago the appearance of an automobile on a city street was an odd occurrence, arousing much the same amused curiosity as attends a circus marvel. 'Get a horse!' was the cry directed at the driver; and it was as a freakish 'horseless carriage' that the automobile first became known. Few there were who regarded it as anything more than a new plaything of the wealthy.

Swifter than horse or bicycle, the automobile became the center of a new racing sport. Speed, endurance, and various mechanical tests, conducted with great newspaper publicity, aroused widespread interest. Demand for the vehicles increased. Numerous small producers were soon recruited from many quarters. Then, with great suddenness, the automobile was transformed from an unimportant luxury into an instrument of rapidly expanding use. Stimulated by the appearance of efficient low-priced vehicles, after 1908, demand grew apace; production quickly followed. As against an output of 65,000 motor vehicles in 1908, that of

1914 exceeded half a million; that of 1916 was more than 1,600,000. Despite many confident predictions to the contrary, the industry continued, with only brief recessions, its remarkable growth. By 1922, its output had passed 2,500,000; and in the four years ended in 1926, American motor vehicle production aggregated 16,427,549 cars and trucks valued at wholesale at more than $11,000,000,000. On January 1, 1927, there were more than 22,000,000 motor vehicles registered in the United States.[1]

To-day, the purchase and operation of motor vehicles absorbs perhaps one-tenth or more of the total annual income of the American people. Our retail purchases of passenger cars and trucks amounted to about $4,000,000,000 in 1926, as in 1925; and our aggregate expenditures for gasoline and oil, tire and parts replacements, repair services, garage rentals, license fees and taxes, and other items incidental to the use of motor vehicles have been estimated at more than another $4,000,000,000 annually.[2] It is interesting to observe, by way of comparison, that our annual expenditures for railroad transportation have been estimated at $5,500,000,000; for shelter, $4,500,000,000; for bread and foodstuffs, $2,400,000,000; and for fuel and light, at $2,900,000,000.[3]

Motor-vehicle manufacture outranks all other American manufacturing industries in wholesale value of product.[4] Automobiles rank first in value among American exports of manufactured goods, and are preceded only by raw cotton

[1] See *Facts and Figures of the Automobile Industry*, 1927, National Automobile Chamber of Commerce.

[2] *Ibid.*; cf. also *Moody's Industrials*, 1926, p. xxxiv (which estimates American automobile expenditures at eleven billions annually); C. C. Hanch, *The Safety Zone in Automobile Financing*, published by the National Association of Finance Companies; J. C. Long, Motor Transport and Our Radical Frontier, in the *Journal of Public Utility and Land Economics*, January, 1926; *Automotive Industries*, vol. 56, no. 7, p. 219; Caldwell & Slosson, *Science Remaking the Modern World*, p. 30.

[3] *Moody's Industrials*, 1927, p. xxxiv.

[4] *Census of Manufactures*, 1925.

and mineral oils, in value, among all the commodity exports of the United States.[1] American car and truck factories represented a capital investment of $2,000,000,000 in 1926; they employed more than 375,000 workers; and, directly and indirectly, the automobile industry as a whole was estimated to employ more than 3,743,000 workers.[2] The important relation of automobile manufacture to other American industries is suggested by the proportions of their total output absorbed by automobile production in 1926: iron and steel, 14 per cent; plate glass, 50 per cent; rubber, 85 per cent; upholstery leather, 63 per cent; nickel, 28 per cent; aluminum, 25 per cent; tin, 21 per cent; copper, 13 per cent; hardwood, 11 per cent.[3] Nearly 900,000 carloads were required to transport automobile parts and completed vehicles on American railroads during 1926.[4]

Indicative of the enormous financial importance of the industry, apart from the data already cited, we may note that $4,000,000,000 of credit was required in 1925 to finance wholesale and retail purchases of finished vehicles alone;[5] that the securities of automobile companies listed on the New York Stock Exchange appreciated more than a billion dollars in market value during 1925;[6] that the net profits of the General Motors Corporation in 1926 (more than $186,000,000) exceeded those of any other American business enterprise; and that a firm of investment bankers, Hornblower & Weeks, offered a billion dollars in 1925, and again in 1926, for the capital stock of the Ford Motor Company.[7] In the opinion of Messrs. Foster and Catchings, the growth of the automobile industry has been the greatest single

[1] *Commerce Yearbook*, 1926, United States Department of Commerce, p. 430 ff.

[2] *Facts and Figures of the Automobile Industry*, 1927.

[3] *Ibid.* [4] *Ibid.*

[5] Hanch, *The Safety Zone in Automobile Financing*, published by the National Association of Finance Companies.

[6] As computed by *Automotive Industries*, vol. 54, no. 4, p. 130.

[7] Testimony of John W. Prentiss, a member of the firm, before the Federal Board of Tax Appeals, in Washington, February 2, 1926.

cause of American prosperity during the past fifteen years.[1]

The phenomenal expansion of the automobile industry is less surprising when we consider that, more than an ordinary addition to our stock of useful contrivances, the motor vehicle has provided a new, flexible, and widely serviceable means of transportation. The routes and means of travel have always been factors of supreme economic and social significance; and they have always claimed a substantial proportion of economic effort. Waterways are of limited and uneven distribution; railed transportation is restricted by its rigid routes and by its great capital costs; the common roads, until the advent of the automobile, did not afford rapidity of locomotion. The motor vehicle, swift, flexible, and relatively low in capital cost, accompanied, as it has been, by a tremendous extension and improvement of the common roads, supplements all other forms of transportation with extraordinary efficiency, and supplies many special types of transportation service hitherto largely unavailable.

The private passenger automobile is, in effect, an enormously useful tool for personal locomotion. Unlike the railroad and the trolley, it offers flexible response to individual requirements; in contrast with horse-drawn vehicles, it provides much of the speed and ease of railed transportation. Employed for business or pleasure, it economizes time and energy and effectively reduces distance. There is no way of measuring accurately how far it pays for itself by enhancing productive efficiency alone, though there is little doubt that it has contributed greatly to recent increases in urban and suburban real estate values.[2] In any event, the value placed upon its service is best attested by actual expenditures: the wholesale value of the American passenger car output dur-

[1] *Business Without a Buyer*, chap. VI, the sub-title of which is, 'Could Prosperity have Come without the Automobile?'

[2] Cf. J. C. Long, 'Motor Transport and Our Radial Frontier,' in the *Journal of Public Utility and Land Economics*, January, 1926.

ing the ten years ended in 1926 aggregated 17.3 billions of dollars; and passenger cars constituted 89 per cent of the total American motor-vehicle output during this period.[1]

The motor vehicle's combination of speed, ease, and flexibility makes it capable of rendering distinctive services in connection with freight haulage and public transportation. The motor truck has all but entirely supplanted the horse-drawn vehicle for the delivery of goods from store, warehouse, factory, and ship and rail terminal. In nearly all large cities motor omnibuses are 'feeding' and otherwise supplementing electric traction service; in many smaller cities, local street-car service has been entirely replaced by motor-bus lines; and many communities hitherto unserved by regular transportation facilities now possess organized motor service. Both competing with and supplementing railroad service in interurban transportation, the motor vehicle possesses the advantages of low capital costs, low overhead expenses, flexible routes, elimination of terminal reloading, frequent stops, relative economy in less-than-carload lots, etc. Requiring only common roads, the construction and improvement of which have assumed the proportions of a major industry in the United States,[2] motor-vehicle freight and passenger service may be quickly introduced and as quickly shifted, extended, or withdrawn. Indeed, a growing use of the motor vehicle is that of replacing 'short lines' of railroads, many of which have long been overburdened with high overhead costs, and of creating 'feeders' for their main lines. In 1926, sixty steam railroads were employing motor busses to supplement their passenger service, sixty-one were using motor trucks for terminal operations and for store door delivery, and eleven were employing motor trucks to replace local freight trains.[3] So

[1] See *Facts and Figures of the Automobile Industry*, 1927.

[2] The United States Bureau of Public Roads estimates the 1926 expenditures for rural road construction and maintenance at $1,030,000,000. (Bulletin of March 21, 1926.)

[3] *Facts and Figures of the Automobile Industry*, 1927. The National

extensive have the routes of motor transportation lines become that there is now scarcely a point on a paved road in the United States at which motor transportation cannot be had to near and far centers; and several measures are now before Congress providing for the regulation of interstate motor transportation.

Other new or more specialized transportation and power services have been made available by various applications of the internal combustion motor. The potentialities of the aeroplane are daily becoming matters of less distant significance. The automotive farm tractor is an outstanding addition to the newer stock of agricultural aids. Motor-truck transport, ambulances, and armored tanks, were of great importance during the World War. The construction industries have combined the motor truck with various hoisting, hauling, and dumping devices. The taxicab has become a ubiquitous servant in our cities. Even gasoline-driven locomotives have in some places been introduced.

As has been the case with other great inventions, the social and economic effects of the motor vehicle transcend its immediate services. The isolated American farm of the past is giving way to organized rural communities, built about the consolidated rural school, the rural social center, and the country church.[1] The motor truck has increased the number of marketing centers open to the individual farmer, has made distant farms more accessible to markets, and has increased the radius of profitable direct marketing in the vicinity of cities. Between 1918 and 1926, the number of horses employed on American farms declined by approximately forty per cent, reflecting in part the increased use of

Automobile Chamber of Commerce, basing its figures upon reports submitted to the Interstate Commerce Commission, notes that 19,099 motor busses competing with Class I railroads operated over a route mileage of 334,522 miles, and 43,207 motor trucks, similarly competing, operated over a route mileage of 607,029 miles, in 1926.

[1] These and related effects of the motor vehicle are discussed by a score of writers in the *Annals of the American Academy of Political and Social Science*, vol. XXVI, no. 205.

motor truck and tractor.[1] As this tendency continues, thousands of acres of land now used for raising hay and oats will be released for other crops, and the quantity and irksomeness of human labor on farms will be greatly reduced.[2] The motor vehicle has encouraged enlargement of the physical area of our cities and a multiplication of the number of residential suburbs, bringing thousands of acres of land into more valuable employment, and effecting great improvement in housing and working conditions. An important adjunct to the means of recreation, the automobile is rapidly abridging the social as well as the physical gap between country and city. In breaking up many neighborhood groups and in overcoming distance, the automobile has possibly caused some weakening in the sense of local unity and responsibility. The widespread use of the motor vehicle has been accompanied by a general social atmosphere of haste and change: many elements contribute to this vague but pervasive tenor of modern life; the automobile is no doubt one of these.

The very processes of automobile manufacture in the United States have been of widespread influence. In no other industry have mass production, standardization of product, minute specialization of labor, the automatic machine-tool, and clock-like organization of factory operations, been employed to the same extent. The physical and psychological effects of these methods upon the workers have been the subject of much debate; but their immediate industrial superiority is causing their extension to many other fields.

The automobile has raised new problems. The congestion of traffic in our larger cities and the enormous loss of life and limb in automobile accidents are causing great sums to be spent for traffic regulation, street-widening, and radical

[1] Cf. monthly reports of *Crops and Markets*, published by the United States Department of Agriculture; and Cleveland Trust Company *Business Bulletin* of June 15, 1927.

[2] *Ibid.*

readjustment of city-plans. Our expenditures for rural highways, which amounted to less than $3,000,000 in 1904, and to less than $25,000,000 in 1914, are now absorbing a billion dollars annually. The perpetration of crime, no less than the performance of reputable tasks, is facilitated by the motor vehicle. To the importance of the automobile, is largely due the prevailing intense international rivalry for the world's oil and rubber resources.

It is beyond the scope of this study to draw more than passing attention to some of the ulterior effects of the motor vehicle. It is sufficient here to observe that a product that has supplied a new and powerful means of transportation, and that, directly and indirectly, absorbs perhaps one-tenth of our total national income and the energies of nearly one-tenth of our working population, cannot help but exercise a profound influence in many spheres.

The economic development of the American automobile industry reflects many of the best aspects of competitive enterprise. Enormous profits (sometimes large losses) have gone hand in hand with falling prices and improved products. Competition has enforced the prompt adoption of progressive advances in design and manufacture. The technical efficiency of American automobile production has established standards of practice and achievement that have aroused widespread admiration and emulation.[1] The less desirable effects of quasi-autocratic control over labor have been mitigated in this industry by relatively high wages and by intelligently planned working conditions. The corporate form of business organization, and, as we shall find, the existence of numerous independent contributory enterprises, have facilitated the distribution of capital and risk burdens; while, despite the impersonal form of corporate organization, the potent motive forces of personality have been able to play conspicuous rôles.[2] Due to the remarkable

[1] Cf. Arnold and Faurote, *The Ford Methods and the Ford Shops.*

[2] Compare Alfred Marshall, *Principles of Economics*, 8th ed., chap. XII, in which the late dean of English economists discusses the defects of the corporate form of business organization.

economies of large-scale operations, the bulk of American automobile production has been concentrated into relatively few hands. Among these, there has been considerable co-operation, such as intercorporate standardization of parts, pooling of patents, and interchange of business information. Competition, nevertheless, has become ever more intense. A study of the development of this industry, therefore, interesting in itself, should illustrate many of the essential processes and tendencies of competitive enterprise. If, as may be alleged, the virtues of competitive enterprise in the automobile industry are to be attributed to the developmental character of the latter up until the present time, while the near future may witness a gathering tendency toward monopolistic control, then, as much as ever, the history of the industry is of substantial significance to the student of our economic institutions.

The growth of the automobile industry has required enormous quantities of productive resources: plant and equipment for manufacturing, raw and refined materials, labor, and a willingness and ability to assume risks. How were these requirements met? How was the growth of the industry financed? It is the primary purpose of this book to throw some light on this question. Under the existing organization of industry, there is no man or group of men, no formal institution, with power to allot to a new product the productive resources that it requires. The new product must fight for its resources. It must divert old and new productive factors from other channels. Its weapons are higher capital returns, higher wages, and higher prices for materials. It must likewise divert old and new purchasing power from other goods. Now finance is essentially the pecuniary aspect of the process of mobilizing economic resources for the various products and processes of economic life. In treating of the financial history of the American automobile industry, therefore, we are attempting to discover just how material resources came to be provided for its growth. Specific knowledge of this sort is sadly wanting. To know

just how profits operate, and just how capital is mobilized and distributed for various industries, gives us an understanding of economic matters that illumines many questions of public policy.

The present study, as noted previously, is limited largely to an examination of the growth of the net invested capital of eight of the leading producers of automobiles in the

TABLE I. RELATIVE AND AGGREGATE IMPORTANCE OF EIGHT LEADING AUTOMOBILE PRODUCERS, 1926, MEASURED BY OUTPUT AND INVESTED CAPITAL

COMPANY	OUTPUT[a]	INVESTED CAPITAL[b]	DATE
Ford Motor Company	1,442,950	$714,902,288	Dec. 31, 1926
General Motors Corporation	1,234,850	636,678,004	Dec. 31, 1926
Studebaker Corporation	111,315	119,033,833	Dec. 31, 1926
Dodge Brothers, Inc.	331,764	114,978,610	Dec. 31, 1926
Packard Motor Car Company	34,000	46,480,944	Aug. 31, 1926
Hudson Motor Car Company	244,667	43,078,016	Nov. 30, 1926
Nash Motors Company	137,376	38,563,350	Nov. 30, 1926
Reo Motor Car Company	34,542	27,993,424	Aug. 31, 1926
Totals	3,571,464	$1,741,708,469	

Aggregate United States and Canadian production	4,428,286
Percentage produced by eight producers	80.65
Aggregate net tangible capital of automobile producers in United States	2,089,498,325[c]
Net tangible capital of eight producers	1,657,813,200[d]

a Data obtained from the offices of the companies, from their annual reports, or from Standard Statistics Company, Inc. The Ford figure does not include output of Canadian plants or other foreign branches; those of other producers do. Ford output was considerably curtailed in 1926 by reason of preparation for the production of new models.

b Invested capital is here defined as net equities of stockholders and bondholders; Dodge Brothers, Inc., alone, of these companies had any bonded indebtedness at the dates given. Data obtained from the annual reports of these companies.

c As computed by the National Automobile Chamber of Commerce; the figure represents only capital invested in this country; and, because of varying interpretations of the questionnaire upon which it was based, it is believed to be somewhat overstated.

d Intangible assets as follows: Ford, $20,517,786 (last given separately in 1924; now lumped together with cash, etc., but believed to be uncharged in amount); General Motors, $43,570,005; Studebaker, $19,807,277; Dodge and Packard, $1 each.

United States. The method of treatment will be as follows: After a survey of the development of the automobile industry, presented in Chapter II, a detailed study of the histories of the Ford Motor Company and the General Motors Corporation will be presented in Chapters III and IV, respectively. The remaining six producers will be treated in more summary fashion in Chapter V. The study will be concluded with a brief summary and discussion of its findings. That the eight companies under examination constitute a large part of the automobile manufacturing business of the United States will be evident from the accompanying table (Table 1), in which their aggregate and relative importance are roughly indicated.

CHAPTER II

THE DEVELOPMENT OF THE AUTOMOBILE INDUSTRY

1. Invention

Like other complex artifacts, the automobile was evolved rather than invented. The efforts of the earliest 'inventors' of the motor vehicle flowed from a long succession of discoveries and innovations; and the modern product rests no less upon the developed arts of manufacture than upon the achievements of the numerous inventors who have contributed directly to its design. The automobile is the product of the labors and learning of many men, directed at diverse objects, and pooled through the channels of communication.

Wind-driven or 'sailing' carriages are said to have been employed 'from immemorial times on the plains of China and Spain.'[1] Mechanical road transport may be said to have started its present development in the eighteenth century, following the improvements of Watt and others in the stationary steam engine; and the steam-driven road vehicle naturally preceded the steam railroad. In 1760, Captain Joseph Nicholas Cugnot, a French military engineer, constructed a steam-driven wagon designed to haul heavy cannon — probably the first self-propelled road vehicle ever built;[2] in 1787, Oliver Evans, of Philadelphia, obtained a patent from the State of Maryland for a steam-propelled carriage; in 1801, Richard Trevithick, in England, constructed the first steam-driven stage-coach. Preceding and

[1] Attributed to Bishop Wilkins, writing in 1648, by Talbot, *Motor Cars and Their Story*, p. 3, Cassell & Co., Ltd.

[2] For a fairly non-technical account of the development of steam and gasoline vehicles, see Doolittle, *Romance of the Automobile Industry*; Talbot, *Motor Cars and Their Story*; Jenkins, *Motor Cars*; and Souvestre, *Histoire de l'automobile*; from all of which much of the present account is abstracted.

accompanying the development of the railroad, a number of steam-driven omnibuses began to offer regular transportation in England; and by 1836, a single such enterprise, operated by Walter Hancock, was transporting 12,000 passengers a year.

The early steam-driven road vehicles rapidly gave way to the railroad, however. Their fuel and water requirements made them of enormous weight (three to four tons unloaded); their huge metal-rimmed wheels (six feet in diameter) operated on the uneven dirt roads of the time; they were constructed of wood and of crudely made metal; and they did not have the benefit of modern lubricants nor of modern spring suspension. The excessive vibration and friction caused the vehicles to deteriorate rapidly; they did great damage to the roads; and they caused fright and annoyance to horses and populace. As a result of the latter factors, and of the bitter opposition of horse-haulage interests, toll-gate keepers in England imposed prohibitive fees for the passage of the vehicles over turnpikes and bridges. Despite a favorable report of its Select Committee, Parliament refused in 1833 to intercede in behalf of the operators of steam carriages; and in 1861 and 1865, a series of stringent restrictions were enacted which, among other things, stipulated that every mechanically propelled vehicle operating on the common roads carry three drivers, limit its speed to four miles an hour, and be preceded by a man bearing a red flag.[1] These measures, which did much to retard English motor-vehicle experimentation, were not removed until 1896.[2] In America, as in England and France, the railroad absorbed most of the energies of creative workers in the field of land transportation for many years.

The discovery of large quantities of petroleum in the United States, coupled with advances in distillation methods that brought kerosene and gasoline into wide use after the

[1] See Rolls, *Encyclopædia Britannica*, vol. XVIII, p. 914 ff.

[2] *Ibid.* They had been held, in 1881, to apply to gasoline, as well as to steam vehicles

middle of the nineteenth century, opened up new possibilities for self-propelled road vehicles. Because of their great energy per pound of weight, the new liquid fuels were infinitely superior to coal and wood for the generation of power on light vehicles. Almost simultaneous with the appearance of improved steam carriages burning kerosene was the application of internal combustion hydro-carbon motors, first used for stationary power purposes, to the road vehicle. Siegfried Markus, whose gasoline-propelled carriage was displayed at the Vienna Exhibition of 1875, is said to have produced his first model in 1865; Lenoir, in 1863, had constructed a vehicle employing street gas; hence Markus has been designated by the Austrian and German automobile clubs as 'the inventor of the automobile,' while a French commission has claimed this distinction for Lenoir.[1]

Lenoir had used an electric spark to ignite the gas in his engine. In 1876, Otto, in Germany, invented an engine in which the gas was compressed before ignition, vastly increasing its propulsive power. In 1885, Gottlieb Daimler, an employee of Otto, and, in 1886, Carl Benz, patented motor vehicles of greatly improved design. In 1887, Levassor, of the French firm of Panhard & Levassor, who had acquired rights to the Daimler patents, introduced so many improvements in general chassis construction and in power transmission, that he, too, like Markus, Lenoir, Daimler, Benz, Otto, and others, has been called 'the father of the automobile.'[2]

The present-day motor vehicle is the product of far more than the labors of these early inventors. Without the rubber tire, to take a single example, the automobile, however otherwise improved, was subject to enormous traction difficulties; difficulties which did much to transform the early steam carriages into locomotives and trains designed for use on prepared rails. The character and importance of the modern automobile rest upon literally thousands of later ad-

[1] Talbot, *Motor Cars and Their Story.* Introduction.

[2] Cf. Doolittle, Jenkins, Talbot, and Souvestre, *op. cit.*

vances in design and construction, and upon great improvements in the arts of production.

2. American Beginnings

The United States lagged behind the Old World, at first, in the technical development and commercial production of the motor vehicle. Stationary gasoline motors had been introduced into this country soon after their appearance abroad; and on May 8, 1879, George B. Selden, of Rochester, New York, had filed application for the first American patent on the hydro-carbon motor vehicle. But Selden waited many years before constructing a vehicle based upon his patent model, and during most of this time American invention made little progress. When, in 1895, the Selden patent was finally issued, the inventor was unable to procure financial support for the exploitation of his patent.[1] Other American inventors, however, building largely upon European practice, had now entered the field. Charles E. Duryea produced a gasoline automobile in 1892; Henry Ford and Ransom E. Olds each completed one in 1893; Elwood Haynes and the Apperson brothers in 1894, and a dozen other individuals and groups produced experimental models or began commercial manufacture before the end of the century.

The ascendency of the gasoline automobile was threatened, for a few years, by the improved kerosene-burning steam vehicle and by the lately invented electric carriage,[2] production of both of which had been undertaken by a number of bicycle, wagon, and machinery manufacturers. The steam car was far less noisy than the early one- and two-cylinder gasoline vehicles; and the promise of the electric vehicle was furthered by the large development, at this time, of electric traction and lighting systems and by widespread rumors of startling improvements in electrical ap-

[1] Doolittle, p. 21.

[2] Produced by Elwell (1884), Ward (1886), Volk (1888), Morrison (1891), and others.

paratus of all kinds.[1] In 1900, at the first American automobile show, nearly two-thirds of the show space was devoted to steam cars, and most of the remaining space, to electrics. Almost immediately thereafter, however, the gasoline automobile eclipsed its rivals. As against the steam car, it offered greater freedom from mechanical care and readier starting; as against the electric, it offered greater distance before refueling and greater power and endurance — important factors in view of American road conditions and distances. By 1904, American production of gasoline automobiles was more than six times the combined output of steam and electric vehicles.[2]

While the earliest American automobile producers were being torn between the steam, electric, and gasoline vehicles, France, concentrating largely upon the gasoline automobile, had taken the lead in the new industry.[3] Imports of European automobiles into the United States began in 1895, and served to stimulate American activity. But the provision of a 45 per cent ad-valorem duty on such importations (under the heading of 'manufactured metal' in the Dingley tariff), combined with the rapid growth of the domestic industry, enabled American producers virtually to monopolize the domestic market almost from the start. By 1907, the value of American automobile exports was exceeding that of imports; and in the years following, exports increased progressively, while imports soon dwindled into insignificance.[4]

The automobile was at first regarded as an interesting

[1] Doolittle, *op. cit.*, p. 61 ff. [2] *Census of Manufactures*, 1914.

[3] Rolls (*Encyclopædia Britannica*) estimated French automotive exports for 1899 at 4,259,000 francs. French automobile output in 1902 totaled 16,500 vehicles, as against American output in 1903 of 11,000 vehicles, according to the *Automotive Trade Journal*, vol. XXIX, no. 6.

[4] The value of American imports of automobiles reached a maximum of $4,041,025 in 1907, 1176 cars being imported in that year; exports in 1907 for the first time exceeded imports. By 1912, American exports had risen to $21,550,139, as compared with imports valued at $2,134,181. Cf. Wallace, 'The Automobile,' *Journal of Education*, vol. 68, p. 57 ff. (July 2, 1908); and the reports of the Bureau of Commerce.

novelty — it did, indeed, serve as a circus attraction in 1896. Then, following the widespread development of automobile racing, which brought the vehicle into great public prominence, its practical value was established by numerous distance and endurance contests; contests which educated the producers no less than potential consumers. More than any of these factors, however, the production of low-priced automobiles, which had begun as early as 1900,[1] served to stimulate public interest in the new product and to spur demand and production.

3. Early Sources of Capital

There was no lack of initiative even at the very beginning of American automobile manufacture. By 1899, fifty-seven producing establishments were already in operation, and by 1904, this number had increased to 121.[2] Few of the producers were endowed with more than meager resources; but both technological and financial factors made entrance into the business extremely easy, and expansion of output did not wait upon the direct commitment of large amounts of capital. Indeed, as will be shown in detail in subsequent pages, the growth of the American automobile industry was characteristically the expansion of originally small enterprises that obtained the bulk of their increasing capital from reinvested profits.

The early producers met the capital requirements of automobile production, in largest measure, by shifting the burden to owners of already existing capital equipment. The automobile was a new product chiefly as an assembled unit: its component parts were much akin to those of a number of other products. As a result of the previous development in the United States of the technique of standardized interchangeable parts manufacture — a technique which had

[1] The Olds Motor Works produced 1400 cars selling at $650 each in 1900. (From data obtained by the writer from Mr. A. B. C. Hardy, president of the existing company in 1924, in an interview in Lansing, Michigan, on December 24, 1924.)

[2] *Census of Manufactures*, 1921.

been extensively employed by the sewing machine, bicycle, wagon, and other American industries — numerous establishments were in existence equipped with the tools, machines, and technical skill for the manufacture of wood and metal sub-products.[1] Specialized automobile factories were therefore not essential. Orders for parts were given to scores of wood- and metal-working enterprises; carriage-makers were available for the manufacture of 'bodies'; and the producers of rubber goods and electrical equipment soon added their contributions. The chief business of the automobile producer, after the design of his product and the placing of orders for parts, was the assembling of the major components and the sale of the completed vehicle. The process of assembling was a short one; it required neither large plant nor elaborate equipment; and lands and buildings were as often rented as purchased.

Thus, the bulk of the fixed capital required for the production of automobiles was not provided by the producers themselves, but by the parts-makers; and the provision of this capital did not wait upon the willingness of its owners to assume the new and large risks of automobile production proper. In part, the automobile diverted capital from other goods; to some extent, however, the needs of the new product were met by a more efficient utilization of capital: idle utilities residing in the equipment of machine-shops and other enterprises were brought into use through additional orders coming from the new industry.

The working capital burdens of automobile manufacture were similarly shifted and distributed. The practice of purchasing parts made to order minimized the current financial requirements for wages. The process of assembling was not only short, but was often shorter than the credit period of thirty to ninety days allowed by the parts-makers. And the demand for automobiles was such that, in exchange for

[1] See W. L. Thorp, *Integration of Industrial Operation*, Census Monograph no. 3, p. 86 ff., Government Printing Office, in this connection, for the example offered by the carriage and wagon industry.

exclusive territorial rights for dealers and distributors, the automobile producers were able (1) to exact advance cash deposits of twenty per cent or more upon all orders; (2) to require full payment immediately upon delivery of the completed vehicle (sight draft being attached to the bill of lading); and (3) to ship cars immediately upon production, irrespective of current retail sales, according to a prearranged schedule with each selling establishment. Thus, Senator James Couzens, who was an active officer of the Ford Motor Company from its inception in 1903 until 1919, replying to some questions of the present writer, declared:[1]

> I recall that by a rule of the industry generally deposits from dealers were a requisite to their securing cars and this in itself accumulated quite a fund which could be used in manufacture. Of course, parts manufacturers extended credit and were paid in accordance with the usual terms in the industry.

Similarly, Mr. Roy D. Chapin, chairman of the board of directors of the Hudson Motor Car Company, and one of the pioneers of the industry, explained in substantially the following language the conditions under which the industry operated as late as 1909, when he, with a few others, founded the Hudson company:[2]

> It is said that the Ford Motor Co. started with $28,000. We started with much less than that. . . .
>
> Dealers' deposits often paid half the sum necessary to bring out a full year's production; and if the assembling were efficiently directed, drafts against the finished cars could be cashed as rapidly as the bills from parts-makers came in. . . .
>
> We sold directly to distributors from the first. We looked for individuals of substantial capital and financial responsibility who would be sure to fulfill their engagements.

4. Origins of Some Early Leaders

The remarkably favorable factors just outlined, combined with the corporate form of business organization, which per-

[1] In a letter dated February 2, 1924.

[2] In an interview with the writer in Detroit, December 11, 1924. The quotation was transcribed from notes taken during the interview.

mitted the limited liability of stockholders and the easy division of the residual capital and risk burdens, enabled scores of small enterprises to enter upon automobile production. Such entrance was stimulated by the rapid growth in demand and by the large profits of successful production. Some of the automobile inventors, sponsored by small groups or financed by local subscription to capital stock, quickly entered the field; a number of manufacturers of bicycles, wagons, and carriages ventured timidly into the business by turning over portions of their facilities to the automobile; machine-shop enterprises, after a more or less brief experience with parts manufacture, undertook automobile production proper; associates and employees of successful producers broke away to found independent companies.

In 1899, Samuel L. Smith, a Detroit capitalist who had grown wealthy in the lumber industry, was seeking openings for his two sons. His attention was drawn to the efforts of Ransom E. Olds, of Lansing, Michigan, to obtain support for the exploitation of his one-cylinder 'Oldsmobile.' With Smith's aid, the Olds Motor Works was thereupon started in Detroit.[1] When, because of disagreement with the Smiths, Olds retired from the Company in 1905, some citizens of Lansing organized the Reo Motor Car Company, offered Olds a controlling interest for his services, and thus induced him to lead another automobile manufacturing enterprise.[2]

Henry Ford was financed by a small group of Detroiters in 1902 under the name of the Detroit Automobile Company. Disagreeing with his associates, he joined another group for a short time, organized as the Henry Ford Automobile Company. Unsatisfied still, he succeeded in enlisting the aid of Alexander Y. Malcomson, a Detroit coal merchant, and was thus enabled to form the Ford Motor Company in June, 1903, with a total cash capital of $28,000.[3]

[1] From data obtained from Mr. Olds in an interview with the writer in Lansing on December 24, 1924.

[2] *Ibid.* [3] See Chapter III, below.

William E. Metzger, a Detroit bicycle dealer, and others of the group that had originally financed Ford, induced the Leland & Faulconer Machine Company, which was making parts for various producers, to join them in a new enterprise, the Cadillac Motor Car Company, which proceeded to manufacture a car designed by Alanson P. Brush, one of the Leland & Faulconer employees. Brush later left the Company to start another automobile enterprise under his own name.

The Buick Motor Car Company was formed in 1903 by Benjamin Briscoe, a parts-maker, who had acquired rights to a model designed by David Buick. A year later, the Company was taken over by a Flint, Michigan, wagon enterprise. The year following, it came into control of William C. Durant, then a Flint carriage manufacturer, who, a few years later, made it the nucleus of the General Motors Company.

Briscoe, in the meantime, became interested in another model, designed by J. D. Maxwell, one of the dozen prominent graduates of the two Olds enterprises. The Maxwell-Briscoe Motor Company was organized in 1904; an investment, first of $10,000, and then another of $100,000, was procured from the elder J. P. Morgan;[1] after a few years of successful operation, this Company was made the nucleus of the short-lived United States Motor Company, out of the ashes of which came the Maxwell and then the present Chrysler companies.

The Packard was first produced by J. W. Packard, of Warren, Ohio, manufacturer of electric cables, in 1900. Henry P. Joy, a Detroit capitalist, purchased one of the early models, and then persuaded some of his friends to join him in acquiring a controlling interest in the business and in moving it to Detroit, where it was established in 1903. The Studebaker carriage and wagon organization, after first choosing the electric vehicle, entered the gasoline field in 1908 as distributing agent for the Everitt-Metzger-Flanders

[1] See Briscoe, 'The Inside Story of General Motors,' published in the *Detroit Saturday Night* of January 15, 22, 29, and February 5, 1921.

Company, which it absorbed shortly after. The Overland, originally the product of an Ohio buggy manufacturer, became important after 1908, when it was taken over by John N. Willys, previously a bicycle and motor-car salesman. Four graduates of the Olds enterprises, Roy D. Chapin, Howard E. Coffin, R. B. Jackson, and F. O. Bezner, interested a Detroit merchant, J. L. Hudson, in a new design in 1908; with $10,000 of cash so acquired, together with smaller amounts otherwise collected, the Hudson Motor Car Company was organized a few months later. The blueprints of R. C. Hupp, coupled with the modest support of a small group of Detroit business men, similarly became the basis of the Hupp Motor Car Company.

Elwood Haynes and the Apperson brothers, sponsored by local groups, had undertaken commercial production soon after the completion of their original models. The Winton (1898), the Pierce-Arrow (1901), the Jeffery, later Nash (1903), the Thomas Flyer, and a few others, grew out of bicycle-manufacturing enterprises; the Peerless issued from the Peerless Wringer Company; the White, first steam and then gasoline, from the White Sewing Machine enterprise.

In ways such as these, then, modestly launched, for the most part, did automobile-producing companies spring up.

5. Early Failures

If entrance into the automobile manufacturing business was easy, failures, too, were swift and numerous. Even before the industry was well started, it had already been prolific of misguided promotions and unsuccessful manufacturing ventures. Many of these originated in that heyday of financial promotion generally, the few years on either side of the turn of the century, when, as in many other industries, numerous newly projected enterprises issued large amounts of securities based, it would seem, on little that was more tangible than a general optimism. The automobile companies thus originated quickly became mere names: the Woods Motor Vehicle Company ($10,000,000 capitalization); the

Automobile Company of America ($5,000,000); the Automobile Forecarriage Company ($5,000,000); the Horseless Vehicle Company, International Automobile & Vehicle Company, Pneumatic Carriage Company, Automatic Air Carriage Company, and others.[1]

A few large promotions persisted for some years. The Electric Vehicle Company, which had acquired ownership of the Selden patent in 1899, issued more than $20,000,000 of securities by 1902; in 1907, it went into receivership, to be reorganized in 1909 as the Columbia Motor Car Company, with its capitalization scaled down to little more than $2,000,000; this company likewise failed, and was finally liquidated.[2] Similarly, the Pope Manufacturing Company, which had ventured into the electric vehicle business from that of bicycle manufacture, failed in 1907; failed again after a reorganization; and, finally, what was left was absorbed by the Willys-Overland Company. Of all the automobile manufacturing enterprises sufficiently important to be listed in the 'Manual of Statistics' for 1902, none survives to-day except as a vestigial element incorporated in some other enterprise.[3]

As American production got under way, the large profits of successful enterprises were widely advertised, and became the basis of extravagant promises on the part of sanguine or unscrupulous promoters. Hence, new waves of promotion, initiating scores of companies, took place irregularly for some years. If the number of all entrants into the industry be compared with the number of survivors, the mortality rate will be judged to have been high indeed. As against the Census figure of 265 automobile producers in 1909, the magazine 'Motor,' in July, 1909, contained a list of 639 firms that had 'engaged' in the industry up to that time. Most of these firms, however, had never attained to the stage of commercial manufacture. A recent study indicates that seventy-seven enterprises had produced automobiles on a commercial scale between 1902 and 1909, inclusive; and that

[1] Doolittle, *op. cit.*, p. 288 ff. [2] *Ibid.* [3] *Ibid.*

of these, only eight had retired from business during the interval.[1] In other words, failures, while numerous, were largely confined to the promotion stages.

The successful producers flourished rapidly. Their expansion was facilitated by the same fortunate practices that encouraged prolific entrance into the industry; and the bulk of their large profits was promptly reinvested in the business. Increases in their output, stimulated both by the rapidly growing general demand and by the cumulative growth in the reputations of particular 'makes,' did not require immediate and large additions to their plants nor to their working capital. The facilities of parts-makers steadily increased; competition among distributors and dealers for the profitable sales rights permitted the continuance of the practices of advance dealer deposits and cash sales; and the parts-makers allowed the boon of open accounts. It was in this way that the Buick, Cadillac, Ford, Maxwell, Olds, Reo, and other producers, each starting with surprisingly small resources, grew in size and importance.

American automobile production, little obstructed by limitations of capital, expanded rapidly. The output of 2500 motor vehicles valued at $4,750,000 in 1899 was increased to 130,986 vehicles valued at $193,800,000 in 1909;[2] and at the end of the latter year, the United States was already exceeding Europe in physical and financial volume of automobile production and in total number of automobiles in use.

6. Localization of Manufacture

The growth of the American automobile industry was accompanied by a rising tendency toward localization of manufacture. Charts I and II, drawn from the Census of 1910, reflect the early prominence of the States of Michigan, Ohio, New York, and Indiana; and Table 17, below, shows the

[1] R. C. Epstein, 'The Rise and Fall of Firms in the Automobile Industry,' a Harvard doctoral dissertation in 1926, extracts from which appeared in the *Harvard Business Review*, vol. v, numbers 2 and 3.

[2] *Census of Manufactures*, 1909.

CHART I. VALUE OF AUTOMOBILE PRODUCTS BY STATES, 1909

large extent to which this leadership has since been retained.

Various circumstances, partly adventitious, contributed to the early emergence of Michigan and Ohio, in particular, as the leading automobile-producing States. In the first place,

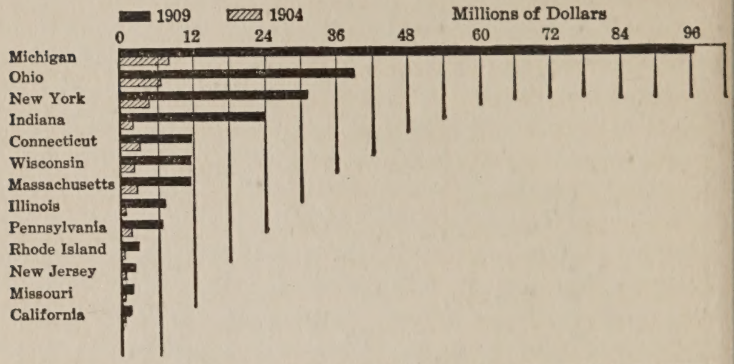

CHART II. VALUE OF AUTOMOBILE PRODUCTS FOR LEADING STATES: 1909 AND 1904

a surprising number of the pioneer inventors and manufacturers were among their residents: Henry Ford, Ransom E. Olds, David Buick, Charles King, Henry M. Leland, and others, of Michigan; Alexander Winton, the White family, the Peerless group, and others, of Ohio. Stimulating both invention and manufacture of motor vehicles in these States was the prior and contemporaneous existence of various related industries. In Michigan, early iron and copper mining, and the State's great timber resources, among other factors, had resulted in the development of stove, brass, shipbuilding, carriage- and wagon-manufacture, and other wood- and metal-working industries, among which was the production of gasoline and steam engines for stationary power uses. Similar industries, with more emphasis upon steel products, including, particularly, the bicycle, had developed in Ohio. Most of these industries, moreover, were not integrated, but comprised large numbers of independent parts-making, assembling, and sales enterprises. In consequence, inventive and manufacturing talent familiar with the ma-

chine technique, and factories equipped with the physical facilities and traditions of parts manufacture, were readily available in both States for automobile production. And in Michigan in particular, were found a surprisingly large number of men willing to risk capital and energy in the new industry.

More immediately important than any of these influences, however, was the fact of the initial successes of a large number of Michigan and Ohio automobile producers. While entrants from other States were more numerous in the aggregate and accounted for the larger part of American automobile production for a few years, Michigan, conspicuously, possessed the most successful enterprises: the Buick, Ford, Olds, Cadillac, Packard, and other Michigan companies led the field as early as 1907. Their success attracted the attention of the men of capital and energy about them, and of would-be automobile producers located elsewhere. It stimulated the local development of specialized contributory and ancillary enterprises and of technical talent and skilled labor. Thus, the successful producers soon gave to their locations an immediate and real superiority for automobile manufacture.[1] And, since the growth of the leading producers was cumulative, it was their localities which soon contributed the bulk of American automobile output.

In an attempt to discover specific causes for the early localization of American automobile manufacture, the writer has interviewed a score or more of individuals who have been identified with the industry from its early years; the opinion of Mr. Roy D. Chapin reflects that of many others. Mr. Chapin declared:[2]

> Three men, Henry Ford, Ransom E. Olds, and Charles King were responsible for the origin and development of Detroit and the sur-

[1] In April, 1926, a subsidiary of the American Car & Foundry Company, with the entire country to choose from, decided to locate its motor bus plant in Detroit, far removed from the main plants of the parent company.

[2] In an interview with the writer in Detroit, Michigan, December 11, 1924.

rounding territory as the center of the automobile industry. The cars they made and the companies they established were successful, while many of those made in other cities were not. The Detroit successes stimulated more local effort and attracted others from other districts.

The existence of the desired types of skilled labor in this vicinity had something, though not much, to do with the Detroit location. In fact, we had to import our really skilled labor from the east in the early years.

The banks here played an important part. There was a great deal of prejudice in other parts of the country on the part of bankers, particularly in the east. They lacked the business sense that was needed. The Detroit bankers had it and were not afraid of our sight drafts.

That the localization of industry is quite commonly determined by the adventitious success of some single or small group of producers within a restricted district of a much larger area of possible location is reflected by the following freely arranged excerpt from the Twelfth Census of the United States: [1]

In most cases it will be found that the original establishment of an industry in a locality was largely a matter of chance. . . . Somewhere within the possible area . . . an enterprising man started the pioneer establishment of a certain industry. . . . His success proves that the economic conditions are favorable — that he is within the possible area of that industry. But it does more, it creates a local bias toward this particular industry. This bias affects all three classes necessary to its expansion: entrepreneurs, capitalists, and laborers.

7. The Risks of Automobile Production

Commercial bankers, from the beginning, had viewed the automobile industry with great distrust; and its rapid development soon aroused their positive hostility. Writers and lecturers in the banking fraternity cited the growing popularity of the automobile as an ominous sign of extravagance, luxury, and waste; the automobile was pictured as a siren, luring men to mortgage their homes, to liquidate their investments, to reduce their savings accounts, to divert purchasing power from all legitimate channels of consumption

[1] Vol. VII, pp. 210–14 (1900).

and investment.[1] Depression in the bond market, recessions in various branches of trade, and other ills were laid to the motor car.

The hostile conservatism of the bankers, shared, in part, by other sections of public opinion, was accentuated by what appeared to be chaotic conditions among the automobile producers. New promotions, some of them fraudulent and most of them unsuccessful, appeared with great frequency. Each new company claimed revolutionary improvements in design, forcing older producers to make similar claims with respect to each succeeding model, and causing a continuous state of unsettlement within the industry.[2] Large numbers of automobile companies were born to but a few short months of life, and dozens were swept away in the panic of 1907.[3] The fact that it was possible to undertake and to expand production on a minimum of owned capital encouraged trading on the thinnest of equities. In the sense that few automobile producers possessed sufficient reserves of working capital to tide them over possible periods of diminished sales, the whole industry may be said to have been undercapitalized. Relatively small and temporary difficulties in production or sales therefore constituted a serious threat to all producers.

On the other hand, there was every incentive for successful companies to expand their volume of business. Profits were large, and permitted substantial reinvestment of earnings. Increased volume of production lowered manufacturing costs by permitting large-scale production of standardized parts, either by the manufacturer directly or by parts-makers working to order. A larger volume of output cumulatively increased the market for any particular company by permitting an increase in the number and fuller territorial

[1] Cf., for an excellent example, an article by Franklin Escher, 'The Auto and the Bond Market,' in the *Bankers' Magazine*, vol. 81, p. 508 ff. (October, 1910).

[2] See Briscoe, 'The Inside Story of General Motors,' in the *Detroit Saturday Night* of January 15, 22, 29, and February 5, 1921.

[3] Doolittle, *op. cit.*, p. 38; and Dalton, 'When To-morrow's Roll is Called,' in *Motor*, January, 1925, p. 72 ff.

distribution of dealers and service agencies, as well as by adding to the maker's reputation. And the technological and financial practices prevailing in the industry, to which allusion has been made, minimized the capital requirements of expanded production.

Nevertheless, expanded output brought its perils. There was great temptation to employ the profits of a successful year for fixed plant and equipment, despite the availability of the plant facilities of parts-makers, for the latter's profits were large. The demand for automobiles generically was undoubtedly great, but the tentative technical character of the product, both real and fancied, caused great fickleness on the part of the buying public with respect to particular 'makes'; hence the success of any single year's model of any producer was uncertain. Commitments for parts and materials, nevertheless, had to be made; a single bad year, therefore, might easily be a fatal blow. The situation of the Maxwell-Briscoe Company, for example, was thus described by Mr. Briscoe:[1]

> Our business grew very fast in spite of our lack of good, or even fair facilities. . . . With me, however, there was always the thought that if we should ever experience a 'silly season,' should ever drop so far behind competition as to make it difficult for us to sell our product 'off the fire,' we . . . would find ourselves in a very unfortunate financial position.

These conditions and others, which led a number of automobile producers to attempt a combination as a means of pooling the risks of automobile manufacture, were further described by Mr. Briscoe as follows:

> In the spring of 1908, the conditions that confronted the automobile industry were thought by some of us to be somewhat ominous, especially for such concerns as had large fixed investment in plants, machinery, tools, etc. Not a few of the concerns of the day were run by what might have been called 'manufacturing gamblers.'
>
> In many cases, the management had adopted methods that were described as 'plunging.' In fact we all plunged, and conditions came

[1] 'The Inside Story of General Motors,' in the *Detroit Saturday Night* of January 15, 22, 29, and February 5, 1921.

about which were thought by some of us to predicate disaster. The influence of several companies was always exciting and sometimes disturbing. The business of even the sanest among the manufacturers was influenced by them, for they had to submit to be crowded into business risks which they would not have entered into had they not been fearful that some other concern would gain a few points on them. . . .

There was even a greater menace to the industry in the piratical attitude of what were called 'skimmers.' Concerns which did not have a worthy car or any manufacturing ability, but with large stock issues to sell, and by ingenious exploitation would succeed in stirring up the trade and the public, creating the impression that the automobile business was an unstaple one, that the older concerns were robbers, and that they, through some newly discovered combination of geniuses, were enabled to sell gold dollars for fifty cents, in automobiles.

These practices had a considerable effect on the trade, preventing a proper and conservative public view of the business, and bringing, through misrepresentation, a great deal of discredit upon the industry.

Again there were many parts-makers who, by extending accommodations and by taking long chances with small automobile manufacturers, threatened a demoralization by encouraging into the business undercapitalized concerns and inexperienced makers, and although such companies were generally short-lived, this condition hurt while it lasted; in any event, many such companies were bound to get a large share of the local business. Concerns of this type were springing up everywhere, and even though their scope was limited to their own localities, the business which they did in the aggregate was very considerable.

Taking all in all, therefore, in this year of 1908, many of us thought that the industry was beset with difficulties and so came the desire to some of us to form a combination of the principal concerns in the industry, not with the desire to sell all of the automobiles that were to be sold, but rather for the purpose of having one big concern of such dominating influence in the automobile industry, as for instance, the United States Steel Corporation exercises in the steel industry, so that its very influence would prevent many of the abuses that we believed existed. . . .

. . . This was the basis of my thought at the time we of the Maxwell-Briscoe Motor Co. had over-traded . . . all of these things had brought me to the conclusion that some change must be made and that to effect a combination would probably be the most desirable thing to do.

I was in this frame of mind, therefore, when I accepted Mr. Durant's invitation to visit him in Flint.

8. The Ford-Buick-Reo-Maxwell Combination Project

Briscoe's interview with Durant, just alluded to, took place early in the summer of 1908, and resulted in a project for a large combination of automobile manufacturers, with the Buick, Ford, Reo, and Maxwell-Briscoe companies as a nucleus. The Buick Motor Car Company had been taken over by William C. Durant, previously a wagon-manufacturer, three years before, and in 1908 it was the largest producer of automobiles in the United States.[1] The Ford Motor Company, the next largest, and the Reo and Maxwell-Briscoe companies were likewise very prominent producers; and the combination of these four alone might have given their owners, as Briscoe hoped, a predominant position in the industry.

Briscoe, who had manufactured parts for the Ford and the two Olds enterprises, arranged for a conference between Durant, Ford, James Couzens (of the Ford Motor Company), Olds, and himself. At this preliminary meeting, held in Detroit, it was tentatively decided to organize a new company that would purchase the assets of the four others by the issue to them of preferred stock in amounts equal to the appraised value of their assets, and by the issue of common stock on a basis later to be determined.[2] Numerous conferences in New York followed, in the offices of Ward, Hayden & Satterlee; the last-named, a son-in-law of J. P. Morgan, Sr., was attorney for the Maxwell-Briscoe Company. Ford and Couzens had been reluctant to place the project in the hands of Satterlee, preferring their own New York attorney, Job Hedges; and this adverse choice of attorney is believed by Briscoe to have caused the hesitancy

[1] The Buick Motor Car Company produced 8487 automobiles in 1908 as compared with 6181 produced by the Ford Motor Company.

[2] The present account of these and the subsequent negotiations is based upon Briscoe's articles of January 15, 22, 29, and February 5, 1921, in the *Detroit Saturday Night*.

that they displayed throughout the negotiations. Finally, audits and appraisals having been completed, a tentative agreement providing for the distribution of both classes of stock in the projected combination was arranged. At the final meeting held for the consummation of the negotiations, however, Couzens unexpectedly announced that his company had decided to enter the combination only on condition that it receive at least $3,000,000 in cash. R. E. Olds then insisted that his company must be accorded similar treatment. As neither Couzens (whose demands might have been met had they not involved similar demands on the part of Olds) nor Olds could be persuaded to modify his position, the whole project was relinquished.

9. The General Motors Combination

Durant then proposed to Briscoe that the Buick and Maxwell-Briscoe companies combine to form the nucleus of another group of automobile producers. With the aid of George W. Perkins, of J. P. Morgan & Co., who agreed to underwrite $500,000 of the $1,500,000 of new capital desired, a charter was drawn up for a company to be called the International Motors Company. The legal aspects of the new negotiations were turned over to Francis L. Stetson, one of the Morgan attorneys. It was Stetson, according to Briscoe, who prevented the consummation of the new project. When the question of obtaining the prior approval of the Buick stockholders was raised, Durant is said to have replied that, while no general announcement had been made, there was no question about the ratification of the project whenever he chose to present it. Stetson then objected that some of the Buick stock had been changing hands during the course of the negotiations, and that the sellers should be given opportunity to repurchase their stock in view of the new project. (It cannot be said whether or not this was a direct intimation that Durant had been privately purchasing Buick stock during the progress of the conferences.) Durant is said to have replied that he was following the advice of his own

Michigan attorney, John J. Carton, of Flint, and that he intended to continue to do so. Whereupon Stetson declared that he would advise the Morgan firm to drop all connection with the project. Durant was in favor of proceeding with the combination in any event, but Briscoe, who was under obligation to the Morgan interests for their aid in the formation of the Maxwell-Briscoe Company, was obliged to withdraw.[1]

Durant nevertheless proceeded on his own account to effect the organization of the General Motors Company, a name which had been suggested previously by George W. Perkins. The Company was incorporated in New Jersey on September 16, 1908, with a capitalization of $7,000,000 of preferred and $5,500,000 of common stock. The entire stock of the Buick Motor Car Company was immediately acquired by exchange of securities. On October 5, 1909, Durant obtained an option, on behalf of the Combination, to purchase the entire capital stock of the Ford Motor Company at a price of $8,000,000, $2,000,000 of which was to be paid in cash and the remainder in one- and two-year notes.[2] Because the funds of the Combination had been largely absorbed by other acquisitions and by plant expansion, and because it was impossible to procure an adequate loan, this option was allowed to lapse.[3] A similar project for the acquisition of the Maxwell-Briscoe Motor Company was abandoned for much the same reason. By 1910, however, partly by exchange of stock, partly by means of cash realized from the sale of securities, and partly by use of the current large profits of its constituents, the General Motors Company had acquired an entire or controlling interest in some twenty automobile and parts-producing enterprises; and it was

[1] Briscoe, *loc. cit.*

[2] From a memorandum included in the minutes of the board of directors of the General Motors Company at this time, access to which was obtained through the courtesy of Frank F. Kolbe, assistant treasurer, and other officers of the present Corporation.

[3] Cf. Briscoe, *loc. cit.*, and W. A. P. John, 'That Man Durant,' in *Motor*, January, 1923.

marketing ten different brands of motor vehicles, the combined output of which constituted about 21 per cent by volume and 22 per cent by value of the total American automobile output.[1]

The primary object of the Combination, that of pooling the risks of automobile production by offering a variety of automobile products, appeared to be on the high road to realization. But this object required the active operation of many plants; and, because most of the constituents were poorly equipped, the liquid resources of the Combination were soon exhausted by fixed capital expansion, and large obligations were incurred to banks and suppliers. In September, 1910, through a voting trust agreement made in this connection, control of the Company passed into the hands of a syndicate of investment bankers, who, in return for something less than $12,500,000 in cash, received $15,000,000 of the Combination's five-year sinking-fund notes (secured by deed of trust) and a bonus of a large block of stock. Under the conservative management of the bankers, the financial troubles of the General Motors Company quickly disappeared, but its original purpose was largely forgotten: the number of motor-vehicle brands was sharply reduced, and, by 1915, the Combination's share of the aggregate American automobile output had fallen to 8.5 per cent by volume and 13.6 per cent by value.[2]

10. The United States Motor Fiasco

While Durant was organizing the General Motors Company, Briscoe had proceeded with a separate attempt at combination. In September, 1910, the United States Motor Company, which had been quietly incorporated with a nominal capital in New Jersey two years before, increased its authorized capitalization to $30,000,000, divided equally between preferred and common stock; and, in the following

[1] The promotion and history of the Company are treated in detail in Chapter IV.

[2] See Chapter IV, below.

month, largely by exchange of securities, obtained control of nine automobile and parts-manufacturing enterprises.[1] The new combination, aided by the financial support of Anthony N. Brady and other Eastern financiers, immediately embarked upon a large program of expansion. Within a few months, its working capital was depleted and it was forced to issue $6,000,000 of debenture bonds, which, accompanied by a common stock bonus, were sold to Eugene Meyer & Co. and largely retained by this firm. With the funds thus realized, the United States Motor Company renewed its expansion policy. But the failure of virtually all of its twenty-eight distinct models of automobiles, produced under seven trade names, to meet with popular approval, and the large needs of scores of sales and parts-producing companies that it had purchased or organized, forced a receivership in 1912. More than a hundred and fifty distinct corporations possessing diverse and complicated interrelations were found to be controlled by the United States Motor Company. The bulk of these were liquidated; many of the plants, distributed over five states, were sold; and all of the automobile products were discontinued.

A reorganization committee composed of a large number of prominent financiers — George W. Davison, Charles H. Sabin, Benjamin Strong, Jr., Albert H. Wiggin, James C. Brady, and Eugene Meyer, Jr., among others — effected the organization of a new company, the Maxwell Motor Company, which, with $3,000,000 of fresh capital, took over the remains of the United States Motor Company. In order to procure the services of Walter E. Flanders, then head of the Flanders Motor Company, to displace Briscoe, the Flanders enterprise was purchased by the new company, and, in addition to a large salary, Flanders was offered a bonus proportioned to prospective profits. Most of the claims of creditors

[1] The following account is based largely upon a typewritten manuscript entitled 'History of the Maxwell Organization,' prepared for the new president of the Maxwell company in 1921 by Mr. J. C. Holmes, who had been connected with the enterprise almost from the beginning, and who is now assistant comptroller of the Chrysler Corporation.

of the old combination were met by generous allotments of stock in the new enterprise; whence the Maxwell Motor Company started business with a capitalization of more than $35,000,000, divided between first and second preferred stocks and common stock. Under Flanders's management, the Maxwell company prospered for some years, during which its promoters and bankers were able to profit greatly by selling large blocks of stock originally received for promotion services. Later, after the crisis of 1920–21, another reorganization took place, resulting, eventually, in the present Chrysler Corporation.

11. The Selden Patent

The several attempts at combination just described resulted in no perceptible diminution of competition in the automobile industry. More than a decade previously, however, the industry had faced the imminent threat of monopolistic control; and the prolonged legal litigation that followed had important effects upon the competitive relations of American automobile manufacturers.

Reference has been made to the filing of the first automobile patent application in the United States by George B. Selden, of Rochester, New York, on May 8, 1879. Selden, an attorney, dubious of the immediate prospects of exploiting his invention, had managed to keep the application 'alive' in the Patent Office by various legal means for more than sixteen years before causing the patent to be issued.[1] When, on November 5, 1895, the patent was finally issued, apparently embodying Selden's wide claims to the original application of the internal combustion hydro-carbon motor to the road vehicle, the inventor was unable to enlist financial support for its exploitation. In 1897, the wave of industrial combination then sweeping the United States was carried to the nascent automobile industry by William C. Whitney, the well-known traction financier, who organized a combination of numerous electric vehicle enterprises under

[1] 172 Federal 923.

the holding company ownership of the Columbia & Electric Vehicle Company.[1] On November 4, 1899, this company, which was succeeded a few months later by the Electric Vehicle Company, acquired exclusive rights to the Selden patent under an arrangement whereby, eventually, the inventor received a total of about $200,000 in royalties.[2]

The Electric Vehicle Company, coming into possession of what appeared to be the basic gasoline automobile patent at precisely the time when the gasoline vehicle was superseding both steam and electric automobiles, set about immediately to enforce its claims. A test suit was started against the Winton Motor Carriage Company on November 5, 1900, and similar suits were soon brought against others. On March 5, 1903, the Winton company and nine other automobile producers formed the Association of Licensed Automobile Manufacturers, the members of which agreed to recognize the validity of the patent and to pay a royalty of 1.5 per cent of the retail price of all automobiles sold by them, two-fifths of the royalties to be returned to the Association. This arrangement cleared the air for members of the Association, but it threatened to create a partial monopoly of the gasoline automobile manufacturing business of the United States, for licensing under the patent was the exclusive privilege of members of the Association, the doors of which might be closed at any time to new manufacturers.

The Ford Motor Company, organized a few months previously, refused an invitation to join the Association; and on October 21, 1903, at the behest of the Association, the Electric Vehicle Company brought suit for infringement against C. A. Duerr & Co., the New York agent of the Ford Company, to which the latter was joined as defendant.[3] In the stress of the long legal battle that followed, the doors of the Association were thrown open to nearly ninety per cent of American automobile manufacturers; the royalty

[1] Doolittle, *op. cit.*, p. 60 ff.

[2] *Ibid.*

[3] 172 Federal 923.

rate was reduced first to one per cent, then to four-fifths of one per cent, and finally, to a maximum of $150,000 annually, the remainder of the four-fifths of one per cent still collected being retained by the Association for its general purposes.[1] After nearly six years of legal proceedings, the record of which filled thirty-six large volumes, Judge Charles M. Hough, in September, 1909, rendered a decision upholding the patent in every particular.[2] The case was immediately appealed to the United States Circuit Court of Appeals, which, in January, 1911, rendered an opinion formally sustaining the Selden patent, but holding that it did not apply to the Ford automobile: the latter, the Court decided, was based upon the Otto type of gasoline engine, whereas Selden's claims were held to describe an engine known as the Brayton type.[3] This decision effectively vitiated the Selden patent and destroyed the original basis of the Association of Licensed Automobile Manufacturers, for virtually all American automobiles employed the Otto type of engine.

It is interesting to note that this decision was rendered at a time of pronounced public hostility to all forms of combinations and monopolies. The Association had come in for its share of criticism on this ground, despite its liberal concessions.

The extent to which the Selden patent litigation actually retarded the development of American automobile manufacture is difficult to appraise. The patent claims probably discouraged a measure of financial support for some producers; on the other hand, licensing under the patent had soon become open to all; the numerous licensees developed a large business; the royalty fees cannot be judged to have been excessive; and the Ford Motor Company, against which the claims were most strenuously pressed, became, during the pendency of the suit, the most important automobile manufacturer in the world. An important consequence of

[1] The usual activities of trade associations.

[2] 172 Federal 923. [3] 184 Federal 893.

the litigation, moreover, was the acceleration of a movement toward intercorporate standardization and coöperation among American automobile producers.

12. Standardization and 'Coöperative Competition'

The traditions and technique of American manufacture had virtually enforced some measure of standardization in product by each automobile producer from the very beginning. Most of the components of his products were ordered in quantity from independent parts-makers; they could be efficiently assembled into finished vehicles only if the latter were confined to a few standardized models. The enormous economies of mass production of parts and of mass assembling were progressively accentuated as the demand for automobiles increased. The motor vehicle was an intricate piece of machinery, moreover, and had to be adjusted and repaired by divers local establishments; hence approximate identity in construction in the products of each manufacturer was a great advantage. Finally, the generic demand for automobiles was soon so great that problems of production, simplified by standardized practice, rather than those of sales, were long uppermost in the minds of automobile producers.

The great diversity in design of components that at first obtained among different automobile producers, was combated by the influence of the parts-makers, many of whom contributed similar components to a number of different producers. When the first trade association in the industry was formed in 1900, parts- and tire-producers were admitted as associate members; and a number of recommendations for standardized practice were soon adopted.[1] With the beginning of the Selden patent controversy, the movement for intercorporate standardization of minor parts was greatly accelerated, the community of interest existing with respect to the patent, among the unlicensed, as well as among

[1] The National Association of Automobile Manufacturers adopted a standard guarantee on automobiles, standard spacing of tire lugs, and standard lamp brackets and rim sections, in 1902.

the licensed, producers being made the basis for wider coöperation. The charter of the American Motor Car Manufacturers' Association, formed to combat the patent, provided for the interchange of technical information by employees of the different producers with a view toward standardization of various components; and the Association of Licensed Automobile Manufacturers, in 1905, established a Mechanical Branch, under the leadership of which intercorporate standardization of parts and materials was actively and successfully prosecuted.

When the Selden patent was finally adjudged inapplicable to existing automobiles, the National Automobile Chamber of Commerce was formed to succeed the previous trade associations; and the field of technical research and the leadership in the movement for standardization were taken over by the Society of Automotive Engineers. By virtue of its representative membership, its effective research achievements, its bulletins and conferences, and the coöperation of parts- and tire-makers (who had organized as the Motor and Accessory Manufacturers' Association), the Society of Automotive Engineers succeeded in standardizing many scores of parts and many kinds of materials. Whereas, for example, a single parts-maker was at one time supplying 800 different lockwashers to be used with bolts of only slightly varying diameter, requiring, therefore, 800 different producing dies, the number of lockwashers was reduced to 16; more than 1600 sizes of steel tubing gave way to less than 20; the number of alloy steels was reduced from more than 200 to less than 50; and so on.[1] No attempt has been made to standardize the design of the larger components of the various 'makes' of automobiles; and the elimination of needless variation in hundreds of small hidden parts and in many kinds of materials has not detracted substantially from the individuality of the different brands of motor vehicles. Such standardization, on the other hand, has effected large econo-

[1] See John K. Barnes, 'The Men Who "Standardized" Automobile Parts,' in the *World's Work*, vol. 42, p. 204 ff.

mies in manufacture, and has greatly facilitated expansion in output.

13. Pooling of Patent Rights

Striking as was the progress in standardization of parts and materials, a more unusual achievement of intercorporate coöperation among American automobile producers was the pooling of patent rights. Patent litigation in the industry had not been confined to Selden's basic claims. As in the sewing machine, agricultural implement, electrical, and other industries in which machine-made parts are of great importance, numerous patented improvements appeared constantly. A competitive scramble for these diverse advances was likely to give no single producer a pronounced or prolonged advantage: exclusive rights to a preponderant proportion of the improvements were not likely to come into the possession of any single manufacturer; each advance might be quickly superseded by another; and a wide distribution of the patents would leave each producer at a disadvantage with respect to some improvements. The industry as a whole, moreover, would be prevented from uniformly adopting progressive advances in product.

As against the natural difficulties of effecting a free distribution of patent privileges among active competitors, American automobile producers possessed a keen appreciation of the costs, delays, and uncertainties of patent controversy. Even before the Selden suit had been finally adjudicated, various proposals for cross-licensing of patents, therefore, had been made.[1] When, by 1915, the volume of patent litigation in the industry was threatening to increase indefinitely, the sentiment for minimizing this source of expense and uncertainty overcame all obstacles. Through the agency of the National Automobile Chamber of Commerce, approximately 100 automobile producers signed a cross-licensing agreement whereby, with few exceptions, licenses under all patents owned by any party to the agreement were

[1] Doolittle, *op. cit.*, p. 186.

to be extended to all other signatories without payment of royalties. Patents on large aspects of design were excepted, and provision was made for excepting possible radical departures from existing practice.[1] In addition, the Association was empowered to acquire patent rights in its own name, as trustee, for the common use of its members. The pooling of patents thus achieved was a remarkable extension of the principle of standardization through intercorporate coöperation. It reduced patent litigation in the industry to a minimum, and, by means of the provision for joint negotiation with outside patent-holders, through the Association, it minimized the competition for, and hence the costs of, additional patent privileges.

14. Expansion of American Automobile Manufacture

For a dozen years prior to 1909, American automobile manufacture had been steadily emerging from a novel, spectacular, and uncertain development into an organized industry of considerable promise. The technical character of the product had been progressively improved and was commanding increasing public confidence; a number of successful producers had appeared; and the automobile was steadily outgrowing exclusive use as an expensive toy and as an agent of sport. Less than 230,000 motor vehicles had been produced by the end of 1908, but twenty-five per cent of these had been manufactured in the latter year; and, as respects both demand and productive capacity, the ground had been prepared for great and rapid growth.

In 1909, the industry entered upon a long period of remarkable expansion. The low-priced automobile, which had previously made only brief appearances, due perhaps to the narrow range and sportive character of the early demand, now found a ready market. Led by the Ford Motor Company, there was a marked diversion of resources to low- and medium-priced vehicles, and a corresponding increase in the total volume of sales. The output of 1909 exceeded that of

[1] No exceptions have yet been made on this score.

1908 by more than 100 per cent, and during the four years following, 1,260,000 motor vehicles valued at more than $1,292,000,000 were produced.[1] By 1912, automobiles retailing at prices under $1000 had climbed to 43.8 per cent of the total output, and, by 1915, to 72.3 per cent.[2]

Many influences helped to speed the growth in demand. Each increase in output was accompanied by a multiplication of sales and service establishments. Municipal, county, state, and federal agencies undertook extensive construction and improvement of roads. As the automobile became more reliable in operation, there was a growing appreciation of its services in the ordinary conduct of business. The Ford car, selling at extremely low and falling prices, appealed to an enormous market, and served as a powerful educative force for potential purchasers of higher-priced cars. And as the use of automobiles became more and more common, motives of emulation and display reënforced the immediate services of the vehicle as important elements in the demand. Until 1918, when American participation in the World War caused the diversion of much of the industry's productive resources to the manufacture of military products, there was a sharp, though varying, increase year by year in the output of motor vehicles. At the close of the War, the industry quickly renewed its expansion. When, during the depression of 1921, the crest of the automobile demand appeared now to have been passed, the industry again confounded all predictions. Between 1921 and 1926, according to the preliminary estimates of the National Bureau of Economic Research, the average income per person gainfully employed in the United States increased by more than one-third in purchasing power;[3] the automobile claimed a goodly proportion of this increase. Through an extensive development of the installment-payment plan for the retail sale of automobiles, and through sharp reductions in prices, hundreds of thousands of new purchasers were brought into the market.

[1] See Table 8, below. [2] See Table 13, below.

[3] *News-Bulletin* of February 21, 1927, published by the Bureau.

More motor vehicles were produced and sold in the United States between 1922 and 1926, inclusive, than had been manufactured previously in the entire history of the American industry.[1] Various aspects of the expansion of the American automobile industry are reflected by the tables presented at the end of this chapter; the growth in the output of passenger cars and trucks (the former constituting about 90 per cent of the total during the past decade) is summarized in Table 2, and the recent expansion is graphically portrayed by Chart III.

TABLE 2. NUMBER AND WHOLESALE VALUE OF AMERICAN MOTOR-VEHICLE OUTPUT BY PERIODS*

PERIOD	NUMBER	WHOLESALE VALUE
1903–1907	136,830	$233,579,439
1908–1912	970,986	1,151,948,529
1913–1917	5,515,641	3,961,504,292
1918–1922	9,665,355	8,399,539,044
1923–1926	16,427,549	11,021,791,821

* Includes output of Canadian plants making vehicles of United States design. Figures from the National Automobile Chamber of Commerce.

While the tremendous expansion of American automobile manufacture had its primary source in the utilities offered

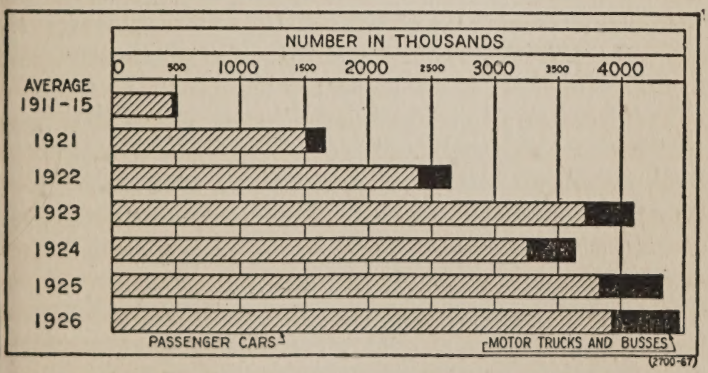

CHART III. PRODUCTION OF PASSENGER CARS, TRUCKS AND BUSSES IN THE UNITED STATES AND CANADA
(From *Commerce Yearbook*, 1926, p. 434.)

[1] See Tables 8 and 14, below.

by the motor vehicle, the ability of American producers to uncover the enormous lower layers of demand and to respond so rapidly to their appearance must be explained in terms of the industrial organization of the industry, its technical processes, and its finance — factors to which we have previously alluded.

The industry inherited, we have noted, a technique of manufacture built upon the machine-tool, interchangeability of parts, and coöperation of independent enterprises supplying convergent sub-products. This technique it proceeded to employ and to extend to an unprecedented degree. The number and complexity of the components of the automobile and the great precision necessary in their manufacture encouraged the widest distribution of manufacturing burdens among specialized suppliers of parts and materials. This distribution, in turn, permitted the early introduction of machines and processes more specialized or elaborate than was justified by the output, at first, of any single producer; it stimulated a nice attention to detail; and it early resulted in the manufacturing and marketing economies of large-scale operation. As demand increased, the pressure upon the parts-makers became ever greater, forcing the adoption of every kind of labor-saving and time-saving device; and the inventors and producers of machine-tools were in turn stimulated to extraordinary ingenuity.

The factories of automobile producers had at first consisted of unspecialized buildings equipped with relatively little machinery and devoted chiefly to final assembling. As output expanded, the assembling operations alone took on huge proportions; and as reinvested profits swelled their capital resources, a number of producers undertook the direct production of various components. The Ford Motor Company had begun in 1908 to concentrate its efforts upon a single standardized model; due to this policy, to the manufacturing genius of Henry Ford and others, and to the remarkable expansion of its business (effect as well as cause), it was able to introduce radical improvements in factory

design and operation;[1] improvements later copied by other producers. 'Henry Ford taught the rest of us much of what we know of automobile production methods,' said Mr. Roy D. Chapin in an interview with the writer.[2] The achievements of Frederick W. Taylor in 'scientific management,' the Ford conveyor system, and specialized processes originated by various parts-makers, were incorporated in modern automobile factory buildings and in the plants of suppliers. Internally, the factories became, almost literally, huge revolving machines. Materials entered in the original freight cars; reloaded on to divers belts, rollers, monorails, and factory trains, they were carried progressively to machine after machine, each of which, supervised by one or more workers, performed in a few strokes a simple or complex operation. The components thus struck off and progressively refined were subjected to rapid inspection by workers armed with instruments of the most remarkable precision. Leaving the testers and still carried on moving apparatus, the components passed down the assembling lines to be joined successively in some major unit or in the finished vehicle. So certain and accurate became the technique of automobile manufacture that the need for final testing of the completed vehicles was largely eliminated; and a number of producers came to save enormous sums in freight charges by shipping parts rather than assembled automobiles to various distributing centers at home and abroad.

To expedite production as well as to meet the deficiency of skilled workers, labor tasks were progressively subdivided and redivided until hundreds of operations previously requiring skilled mechanics were taken over by untrained workers, including a growing number of women in recent years,[3] each of whom, aided by minutely specialized machine-tools, performed but a simple routine task. The clock-like

[1] Cf. Arnold and Faurote, *The Ford Methods and the Ford Shops.*

[2] In Detroit, Michigan, December 11, 1924.

[3] See *Wages and Hours in the Motor Vehicle Industry*, 1922 and 1925, United States Department of Labor.

movement of materials and components, the scientific arrangement of machines, and the enforcement of experimentally determined standards of output, minimized time, space, and motion, and rigidly limited the vagaries of individual workers, hence speeding volume and reducing costs. To counteract the aversion of factory operatives to the monotony and strain of routine work performed under conditions of mechanically enforced regularity and speed, and to stimulate individual and group effort, a variety of bonus systems based upon output, attendance, and length of service were introduced, and relatively high wages, on a piece-work basis wherever possible, were paid.[1] In recent years, due to continued improvement in the organization of operations, and to the unremitting substitution of mechanical power for human workers (there was an increase of 44 per cent in the volume of primary horsepower employed per worker in the combined vehicle- and parts-producing branches between 1923 and 1925 alone[2]), the effectiveness of labor has markedly increased. While statistical data in this field are often subject to misinterpretation,[3] it may be noted that an index of physical productivity based upon the output of 1914 as 100 shows the average productivity per worker to have increased to 249 in 1922, 270 in 1923, 262 in 1924, and 272 in 1925.[4] The average annual earnings of wage-earners in the combined industries increased from $802 in 1914 to $1630 in 1923; between 1922 and 1925, the

[1] See *Wages and Hours in the Motor Vehicle Industry*, 1922 and 1925, United States Department of Labor.

[2] *Census of Manufactures*, 1925.

[3] Because of the varying distribution of workers among the parts-making, assembling, and tool- and machinery-producing branches of, or allied to, the automobile industry. Thus, while the number of workers in automobile factories proper declined by 43,628 between 1923 and 1925, the number employed by parts-makers increased by 64,852. (*Census of Manufactures.*) On the other hand, the net increase in the number of workers in the combined industries was only 5 per cent, whereas the increase in the value of product was 11 per cent.

[4] *Monthly Labor Review*, January, 1927, and *Wages and Hours in the Motor Vehicle Industry*, 1925, United States Department of Labor.

average full-time weekly earnings increased from $32.92 to $36.37.[1] Because of the great variety of trades involved, the rapidity with which the necessary skill for most of them can be acquired, and the relatively high wages prevailing, there has been little attempt to unionize the employees of automobile factories.

The technical efficiency of American automobile manufacture resulted in falling costs of production, falling prices, improved products, and an expanding market; it placed the industry well in the forefront of American manufactures; and, in its own field, gave it an overwhelming international superiority. The average unit value of the American passenger automobile at the factory in 1914 was $762; in 1925 it was $692.[2] The volume of low-priced vehicles was vastly greater in the latter year than in the former, of course; on the other hand, the decline in average wholesale value took place in the face of a much higher price level and despite costly improvements in the product (the proportion of closed cars, for example, rose from less than five per cent to more than sixty per cent between 1914 and 1925). 'The automobile is one of the few important manufactured commodities that can be bought to-day at less than pre-war prices,' said the Bureau of Foreign and Domestic Commerce in its 1926 Yearbook.[3]

The manner in which the great and rapid expansion of the industry was financed has been roughly indicated and will receive more detailed consideration in subsequent pages. The collateral growth of the various branches of the industry gave great flexibility to the capital requirements of individual automobile producers and permitted most of them to rely chiefly upon reinvested earnings to increase their own nvested capital. There was no lack of distributors and lealers willing to contract in advance for a year's output

[1] *Wages and Hours in the Motor Vehicle Industry*, 1925.

[2] *Commerce Yearbook*, 1926, United States Department of Commerce, . 432.

[3] *Ibid.*, p. 438.

and to pay cash upon delivery of the vehicles. The parts-makers increased in number and in scale of operations, many of them, like the producers proper, building up huge enterprises almost solely out of reinvested profits. Between 1914 and 1925, the number of establishments engaged in the manufacture of 'motor vehicle bodies and parts'[1] increased from 971 to 1358; the wholesale value of their products, from $129.6 millions to $1523 millions; the average number of their wage-earners, from 47,785 to 228,382.[2]

Individual financiers made sporadic investments in automobile enterprises from time to time, but the organized fixed-capital markets, until very recent years, played a relatively small rôle in financing the expansion. The five-year note issue of the General Motors Company in 1910 was the first important public offering of automobile company securities. In the same year, investment bankers aided in putting together the unfortunate United States Motor Company, predecessor of the Maxwell and Chrysler companies. In 1911, the Studebaker Brothers Manufacturing Company, in absorbing the Everitt-Metzger-Flanders Company as a means of entering the gasoline vehicle field, reincorporated as the Studebaker Corporation, which realized $8,328,802 in cash from the sale of $13,500,000 par value of seven-per-cent preferred stock;[3] a few months later, this company sold $8,000,000 of ten-year five-per-cent bonds.[4] The securities of the General Motors, Maxwell, and Studebaker enterprises were the first of the industry to be admitted to the list of the New York Stock Exchange. In 1915, the Willys-Overland Company sold issues of common and preferred stocks in connection with its acquisition of a number of small companies; and the Chevrolet Motor Company (Delaware), which soon after obtained control of the General Motors Company, marketed nearly $7,000,000 par value of common stock.

[1] *Exclusive* of producers of tires, springs, ignition apparatus, etc., as classified by the *Census of Manufactures*, 1914, 1925.

[2] See Table 11, below.

[3] Erskine, *History of the Studebaker Corporation*, p. 37 ff. [4] *Ibid.*

These issues represent the chief public offerings of automobile company securities up to the end of 1915. In subsequent years, partly to raise new capital, but much more largely for the purpose of liquidating and distributing the holdings of original owners, the capital structures of most of the leading producers were readjusted; their securities were marketed in substantial quantities through investment bankers and became active in speculative and investment circles; and banker-representatives became attached to their boards of directors. The greatest part of their existing invested capital, however, it will be shown, has been derived from the reinvestment of profits.

The capital, risk, and technical burdens of large-scale automobile manufacture, diffused in varying measure among hosts of independent enterprises, each of which possessed its own sources for augmenting capital and credit and its own specialized organization, offered singularly small resistance to the growth of the industry. To the elasticity of this type of industrial practice must be attributed much of the ease and rapidity with which the expansion of American automobile manufacture took place.

15. The Automobile Finance Company

We have observed that the ability of automobile manufacturers to produce and to market a large and increasing quantity of product has been due in important measure to the shifting of capital burdens to dealers and distributors as well as to suppliers of parts and materials. The producers possessed neither the physical facilities nor the capital to store and 'carry' large inventories of finished product through periods of seasonal fluctuations in retail sales; but they were able to contract with wholesalers and retailers for prearranged schedules of shipments, irrespective of current sales to consumers, and to exact immediate cash payment upon delivery. Distributors (virtually wholesale agents), and, to a lesser degree, retail dealers, were chosen largely according to financial responsibility, the producers expect-

ing to be relieved by them from all burdens incident to the final sale of the products.

In the earlier years of the industry, the selling agents were able to finance themselves from their own capital and by ordinary banking accommodation. With the tremendous expansion of output, the number of dealers and distributors was increased, but their average capital resources declined, and adequate financing of their costly inventories could no longer be undertaken by commercial banks: the possible banking collateral arising from their operations consisted of chattel mortgages and warehouse receipts that were not readily adaptable to the requirements of routine banking practice, while the amount of credit required exceeded that which the banks would lend on unsecured promissory notes. On the other hand, the needs of dealers and distributors were essentially legitimate commercial credit needs. A special credit institution to serve as a financial intermediary between sales agents and commercial banks was a natural response to these conditions.

More important, however, in stimulating the growth of specialized automobile finance companies was the extensive development, particularly after the World War, of the practice of selling automobiles at retail on installment-payment plans. The automobile was one of the most expensive of consumers' goods; to encourage sales, dealers were forced to extend an increasing amount of credit to their customers. In some cases, the promissory notes accepted in payment of vehicles could be discounted at commercial banks; but credit accommodation was demanded by (and, as a result of competition, offered to) large numbers of individuals who lacked conventional credit standing. This situation, even more than the one alluded to above, called for a specialized type of credit institution: (1) the dealers' capital was better employed in their own business — namely, the purchase and sale of automobiles, rather than in 'carrying' the notes of customers; (2) such notes could not be readily discounted at commercial banks because of the unconventional form of the

security — that is, chattel mortgages or conditional-sale agreements on cars in active use and subject to rapid depreciation — and because of the difficulty and expense of provisions for the investigation of risks and the 'repossessing' and sale of cars in cases of default; (3) the substitution of the notes of an intermediary finance company for those of individual customers not only provided commercial banks with paper better adapted to their operations, but it also permitted a wider distribution of such paper among banks and a wider distribution of risks (by pooling the notes of many customers purchasing different 'makes' of cars in different localities).

The automobile finance company, therefore, does two kinds of business: it finances the purchases of distributors and dealers from manufacturers, and it finances purchases at retail. Its funds are derived from invested capital, issues of collateral trust notes, and direct borrowing from commercial banks.[1] The number of automobile finance companies operating in the United States was recently estimated at six hundred;[2] some of them, such as the General Motors Acceptance Corporation, are subsidiaries of automobile producers; others have exclusive contracts with various manufacturers for the business of the latter's distributors and dealers; most of them operate independently. More than seventy-five per cent of motor vehicle sales in the United States in 1925 were made on the installment-payment plan; the volume of installment paper issued in that year exceeded $2,500,000,000; the average contract on new vehicles called for a cash payment of one-third of the list price, with the balance, including financing charges, payable in twelve equal monthly installments; the nominal interest and service charges averaged ten per cent of the full amount of the unpaid balance (the actual rate, allowing for monthly repay-

[1] See Estey, 'Financing the Sale of Automobiles,' and Hodges, 'Financing the Automobile,' in the *Annals of the American Academy of Political and Social Science*, vol. CXVI, no. 205.

[2] *Ibid.*

ment of fractions of the loans, was measurably greater).[1] The statement that the capital turnover of an automobile finance company may easily exceed twenty to thirty times a year, made by the treasurer of one of these companies,[2] reflects the extent to which the ultimate financing is done by commercial banks. The legitimacy of the wide use of commercial banking credit in this connection may be open to question; but there can be little doubt that the extensive application of the installment-payment system has been partly responsible for the enormous growth in the sales of automobiles in the United States in very recent years.

16. Concentration, Integration, and Competition

Fairly early in the development of the industry, the greater part of the business of finished vehicle production began to be concentrated into relatively few hands. The demand for the more successful 'makes' of cars grew cumulatively by force of reputation and example. The successful producers, in expanding output, increased the number and distribution of their sales agencies, thus accentuating their marketing advantage. Greater output brought economies in the purchase and manufacture of components and materials, and in assembling operations, permitting lower prices. The competitive advantage of the larger producers was progressively augmented, moreover, by the important rôle of reinvested profits in financing expansion of output. By 1912, when at least fifty-seven different enterprises were producing motor vehicles on a truly commercial scale, more than half the American output was produced by seven companies. In 1917, ten out of seventy-six active producers were responsible for seventy-five per cent of the physical output of the American industry; in 1923, the same ten produced more than ninety per cent of the output; and in 1926, these

[1] From data collected by the National Association of Finance Companies, and published in *Facts and Figures of the Automobile Industry*, 1927.

[2] Hodges, *loc. cit.*

ten contributed about 88.7 per cent of the output (the reduced proportion in 1926 being due to the diminished activity of the Ford Motor Company pending redesign of its chief models). Table 3 presents the unit output of some of the leading producers, and the total American output, for the years 1912, 1917, 1923, and 1926.

TABLE 3. NUMBER OF MOTOR VEHICLES PRODUCED BY TEN OF THE LEADING PRODUCERS, 1912, 1917, 1923, AND 1926 *

COMPANY	1912	1917	1923	1926
Ford	78,440	785,432	2,090,959	1,442,950
General Motors	49,696	203,119	798,555	1,234,850
Studebaker	28,523	42,357	145,167	111,315
Dodge	(a)	90,000	179,505	331,764
Willys-Overland	22,548	130,988	196,038	179,103
Maxwell-Chrysler	(a)	81,667	67,374	175,020
Hudson	5,449	21,320	88,184	244,667
Reo	6,342	30,246	31,880	34,542
Packard	4,559	19,475	22,930	34,000
Nash	(a)	12,179	56,569	137,376
Totals	195,557	1,416,783	3,677,161	3,925,587
Total United States	378,000	1,873,949	4,079,992	4,428,286

(a) Manufacture not yet undertaken at beginning of 1912.

* The data here presented are not strictly comparable: the fiscal years of these companies vary by as much as six months; the figures for United States output are for calendar years and include production of Canadian plants making vehicles of United States design; the Ford figure for 1926 does not include output of its Canadian company. The data were obtained from the offices of the companies, from listing applications filed with the New York Stock Exchange and from the National Automobile Chamber of Commerce and Standard Statistics Company, Inc., except that the Dodge output of 1917 was estimated.

An increasing measure of industrial integration has accompanied the concentration of production in recent years. The Ford Motor Company, which has adopted the slogan, 'From Mine to Finished Car, One Organization,' has been most conspicuous in this respect: iron, coal, and lead mines; extensive timber properties; blast furnaces, glass and textile factories; and even rail and water transportation have been added to the scope of its operations.[1] The General Motors Corporation, through its purchase of a large number of

[1] See Chapter III, below.

parts-making enterprises in 1918, and through its subsequent acquisition of the Fisher Body Corporation, has likewise achieved a large measure of integration.[1] Other leading producers, in varying degree, have similarly undertaken the direct manufacture of an increasing proportion of the components of their products. This tendency has been facilitated by the curtailment of the number of models that followed the widespread appreciation of the enormous economies of standardized mass manufacture, and it has been encouraged by the availability of funds derived from reinvested profits for financing such extension of operations. The establishment of factory-owned wholesale organizations and the direct operation of retail stores in the larger cities, by a number of producers, are developments in the same direction. Integrated production entails larger requirements for fixed and working capital, and, to the extent that it effects substantial economies, competitive superiority becomes a function of size. The rapid growth of industrial integration in the automobile industry in very recent years is partly reflected by Table 4, in which the total wholesale value of the American motor-vehicle output is compared with the wholesale value of parts, tires, and accessories purchased by automobile producers from others for the production and original equipment of their vehicles, 1922 to 1926, inclusive.

Despite the concentration and integration of manufacture, competition among automobile producers has increased, rather than diminished, in recent years. As a result of the tremendous expansion of manufacturing facilities and of the marked improvements in the utilization of plant equipment, since the World War, the productive capacity of the industry has been increased to a point far beyond any demand

[1] See Chapter IV, below. It may be noted, also, that the Du Pont interests which control the General Motors Corporation have recently purchased 100,000 shares of common stock of the United States Steel Corporation (see annual report for 1926 of E. I. Du Pont de Nemours & Co.) — a step which has moved the Federal Trade Commission to start an investigation of the interrelations involved.

yet made effective. As against the record output of 4,428,286 motor vehicles in 1926, the combined capacity of American producers has recently been estimated at 7,300,000 cars and trucks per annum.[1] In the year 1923, for perhaps the

TABLE 4. WHOLESALE VALUE OF AMERICAN MOTOR-VEHICLE OUTPUT COMPARED WITH WHOLESALE VALUE OF MANUFACTURED COMPONENTS AND EQUIPMENT PURCHASED FROM OTHERS BY AUTOMOBILE PRODUCERS, 1922–26, INCLUSIVE

YEAR	VALUE OF FINISHED VEHICLES[a]	VALUE OF PURCHASED COMPONENTS[b]	PERCENTAGE
1922	$1,787,122,708	$982,952,384	55
1923	2,582,398,876	1,270,000,000	49
1924	2,318,249,632	900,321,000	39
1925	2,957,386,637	1,128,648,000	38
1926	3,163,756,676	823,394,000	26

[a] As reported by the National Automobile Chamber of Commerce.
[b] Based on records of Motor & Accessory Manufacturers' Association, as reported to National Automobile Chamber of Commerce.

first time, many distributors and dealers found themselves unable to sell all the vehicles for which they had contracted. In consequence, a number of producers have relinquished the practice of producing all the cars that dealers can be made to absorb, and have substituted production schedules based upon current retail sales. So dependent is the existing organization of the industry upon a large volume of output, however, that there is constant threat of 'price-war' in times of declining sales, each important manufacturer being tempted to protect the scale of his operations even at great sacrifices. If our output were reduced by only ten per cent, our costs would rise far too high to permit us to retain our present prices,' declared one executive in an interview with the writer.[2]

At a time when its productive capacity has reached new heights, the industry no longer possesses the vast virgin

[1] *Automotive Industries*, vol. 56, no. 7, p. 219.
[2] Mr. Roy D. Chapin of the Hudson Motor Car Company, in Detroit, December 11, 1924.

market of previous years; replacement sales, which alread in 1924 constituted more than half the total,[1] must be r lied upon to absorb an increasing proportion of the outpu Hence, whereas problems of production have hitherto bee uppermost in the minds of automobile producers, those c distribution and sales are now claiming first attentio Great emphasis is being placed upon the improvement c dealer-organizations; indeed, perhaps the chief obstacle co fronting new entrants into the automobile-manufacturin business, at present, is the difficulty of obtaining adequat dealer-representation.[2] A market dominated by the 're placement demand,' moreover, introduces new elements c uncertainty for the individual producer: purchasers are ap to take for granted the fundamental mechanical efficienc of present-day automobiles and to be swayed in importan degree by the less tangible qualities of general appearance color-scheme, various aspects of body design, interior ap pointments, etc. — qualities best summarized, perhaps, b the word 'style.'[3] Because the passenger automobile is conspicuous article of personal and family use, some of th individuality demanded in clothing, furniture, and othe personal possessions, is coming to be required of it. The standardized product, so effective from the manufacturing standpoint, encounters increasing 'sales resistance.' In th attempt to capture the new whims of purchasers, changes i models have been made with growing frequency during th past few years, and there has developed a renewed tendency toward a multiplicity of models and types: some producer have increased the number of body types mounted on a sin

[1] C. E. Griffin, *The Life History of Automobiles*, published by th Bureau of Business Research of the University of Michigan.

[2] The recent failures of the Rollins, Rickenbacker, and other new pro ducers, in the opinion of the writer, were largely due to this difficulty Dodge Brothers, Inc., it may be noted, has provided for the representa tion of its dealers on its board of directors.

[3] These considerations apply chiefly to passenger cars, of course, bu they are not altogether without force with respect to commercial vehi cles; the former, however, constitute the bulk of American motor ve hicle output.

gle chassis; others have introduced complete new lines of vehicles, in lower or higher price-classes, to supplement heir previous lines.[1] In 1909, Henry Ford was able to declare, 'Any customer can have a car painted any colour that ie wants so long as it is black.'[2] Even the Ford Motor Company, however, has recently been forced to make belated concessions in this and other respects; and, in 1927, fully aroused finally by the inroads upon its business made by ome of its more versatile competitors, it virtually closed lown its enormous plants for the better part of a year in rder to design a new car adapted to the tastes of a more ophisticated motoring public.

The marketing advantages of a variety of models are opposed, however, to the manufacturing economies of standrdized production; and this clash necessitates important ecisions of policy by each producer. One result of this ntagonism promises to be a partial reversal, at least temorarily, of the tendency toward integration of manufacire: the delays and expense incident to frequent readjustient of integrated establishments for changes in models are kely to lead to increased reliance, once more, upon the iore elastic organizations of the parts-makers. Between ie beginning of 1926 and the middle of 1927, it may be oted, the twenty-five largest automobile producers inreased their outside purchases of such major components as igines, clutches, transmissions, steering gears, and rear cles, by substantial proportions.[3]

While the long period of large new accessions to the total emand is probably passing, it is a mistake to conclude that ie industry as a whole necessarily faces a critical period of arply curtailed operations. The average physical life of e automobile, at present, is approximately seven years, as

[1] See Norman G. Shidle, Editor, in *Automotive Industries*, vol. 57, no. p. 145 ff.

[2] *My Life and Work*, p. 72. (Henry Ford in collaboration with Samuel owther.)

[3] See N. C. Shidle, in *Automotive Industries*, vol. 57, no. 5, p. 145 ff.

computed from registration data;[1] on this basis, the volum of output required merely to replace the number of vehicle scrapped in the United States is now in excess of 2,000,00 a year. The *effective* replacement market, moreover, in th opinion of the present writer, already approximates 3,000, 000 vehicles annually: from the standpoint of automobil producers, the replacement market is not limited to th number of automobiles actually scrapped each year, bu includes the demand for the replacement of a very larg number of deteriorated, though still serviceable, vehicle that no longer satisfy potential new-car purchasers. Mos purchasers of new automobiles, it is well known, 'trade-in their cars on new ones before the end of the third or fourth year. Such used cars may be sold to second-hand purchasers and operated for some years thereafter; but, except to the extent that the latter are drawn from the ranks of potentia new-car buyers, the continued existence of the used car from the manufacturers' standpoint, does not postpone the appearance of a demand for a new car to 'replace' the old That used cars, after their third or fourth year, offer very little competition with new vehicles — and that their purchasers are not usually drawn from the classes of potential new-car buyers — is clearly evidenced by the wide discrepancies between the prices of new and used vehicles. Data obtained from the National Used Car Market Reports[2] show that the average value of a three-year-old automobile is less than one-fourth of its original price, and that the bulk of four-year-old cars sell at less than $100 each.[3] It is submitted that the buyers of these $100 or even $200 machines are not commonly drawn from the ranks of potential new-car customers. Estimates of the automobile replacement demand that assume that so long as a vehicle is in use,

[1] Ayres, *The Automobile Industry and Its Future*, Cleveland Trust Company; and Griffin, *The Life History of Automobiles*, Bureau of Business Research, University of Michigan.

[2] Published by the Chicago Automobile Trade Association.

[3] Cf. also the Cleveland Trust Company Business Bulletin of April 15, 1927.

whether by its first or its fifth owner, it takes the place of a new car that otherwise would be sold, must be said to be greatly understated.[1]

The domestic replacement demand alone, then, assures a continuing large volume of business for American automobile producers. The practical limits to the expansion of the virgin market, moreover, are still uncertain. In 1921, Mr. Leonard P. Ayres, a careful student of the industry, wrote, 'The use in the near future of anything like twice the present number of motor vehicles seems most unlikely';[2] nevertheless, American registrations more than doubled in the next six years; and Mr. Ayres has since raised his estimate of the theoretical 'saturation point' to 27,500,000 motor vehicles.[3] As against other predictions of stabilization at a point when the number of motor vehicles in the United States approximates the number of families (or when there is one motor vehicle to each five persons), we may note that on January 1, 1927, there were twenty States in which the proportion of motor vehicles to population was greater than one to five, and that, in the United States as a whole, there was already one motor vehicle to every 5.4 persons.[4] It is not altogether impossible that radical reductions in the prices of the cheapest automobiles may make an average of two or more cars per family the rule.[5] And with respect to trucks and busses,

[1] This objection must be made to the estimates of Griffin, *The Life History of Automobiles*, and Ayres, *The Automobile Industry and Its Future*. The sense in which the term 'replacement' is here used may be open to criticism on ground of conflict with common usage, but it is precisely this sense, here termed 'effective replacement,' which is of most significance in the present connection. The estimate of a present effective replacement demand approximating 3,000,000 vehicles annually, ventured above, is based upon computations made by the writer.

[2] *The Automobile Industry and Its Future*, Cleveland Trust Company, p. 26.

[3] *Journal of Society of Automotive Engineers*, February, 1925, p. 195.

[4] Cf. *Automotive Industries*, vol. 56, no. 7, p. 235 ff.

[5] More than 2,700,000 families, or about ten per cent of the total number in the United States, owned two or more automobiles in 1927, according to a survey made by the General Federation of Women's Clubs and checked by the National Automobile Chamber of Commerce.

little basis for prediction may be found in present population-motor-vehicle ratios. Finally, the American export trade in motor vehicles already absorbs ten per cent of the output, and is still growing.

17. Success and Failure

The history of the American automobile industry has been marked by such conspicuous financial successes that the large number of unsuccessful entrants is sometimes ignored. As in a lottery, only the great prizes catch the eye, though the winnings are confined to a few. There were many would-be competitors for the large rewards of successful automobile manufacture: nearly one thousand distinct enterprises are on record as having been organized at one time or another for entrance into the field.[1] Four-fifths of these, however, passed little beyond the promotion stage, falling early victims to one or more of the numerous hazards that attended all initial efforts in the industry. Between 1902 and the beginning of 1927, some 181 enterprises reached the stage of production in commercial volume; of these, only 44 were still in existence in the latter year.[2] Excluding short-lived promotions, and disregarding changes in name or in corporate ownership, the record of entrances into and exits from the industry by years for this period is presented in Table 5, the data for which were drawn from a recent study of failures in the industry.[3]

A high rate of mortality among automobile producers was not unnatural. The industry was new; its product, complex. Technological and business factors encouraged the entrance of numerous small enterprises. Successful operation re-

[1] Such a list has been compiled by Mr. O. P. Pearson, statistician of the National Automobile Chamber of Commerce.

[2] From data obtained from Dr. Ralph C. Epstein, parts of whose study, 'The Rise and Fall of Firms in the Automobile Industry,' were published in the *Harvard Business Review*, vol. 5, numbers 2 and 3.

[3] *Ibid.* The vehicle-producing units of the General Motors Corporation are treated as distinct enterprises, and the Rambler-Jeffery-Nash companies are regarded as a single continuing concern.

TABLE 5. NUMBER OF ENTRANCES AND EXITS OF ACTIVE AUTOMOBILE PRODUCERS, BY YEARS, 1902–26, INCLUSIVE

YEAR	ENTER	EXIT	REMAIN
1902			12
1903	13	1	24
1904	12	1	35
1905	5	2	38
1906	6	1	43
1907	1	0	44
1908	10	2	52
1909	18	1	69
1910	1	18	52
1911	3	2	53
1912	12	8	57
1913	20	7	70
1914	8	7	71
1915	10	6	75
1916	6	7	74
1917	8	6	76
1918	1	6	71
1919	10	4	77
1920	12	5	84
1921	5	1	88
1922	4	9	83
1923	1	14	70
1924	2	15	57
1925	0	8	49
1926	1	6	44

quired frequent prevision of and prompt adjustment to current advances in the design of the motor vehicle and in methods of manufacture. The advantages of large-scale production caused an increasing proportion of the business to go to relatively few enterprises, forcing numerous exits among the smaller producers. Specific causes of failure included the whole range of those operative in business generally, as well as elements peculiar to the automobile industry.

Most of the large number of retirements in 1910 were precipitated by the radical changes in automobile design that were then occurring, and by a retrenchment in credit

caused by the grave and widely known difficulties of the General Motors Company. In addition, an absolute as well as relative decline in the demand for high-priced vehicles had begun to manifest itself just previously: this change in the character of the market caught many producers unawares, and was responsible for a large number of further retirements in the years following. Twenty-two new enterprises were started during the post-war boom of 1919–20; most of these joined victims of accumulated difficulties in the many exits of 1922–26.

Numerous as the failures have been (and not all the exits from the industry were precipitated by technical insolvency), relatively few of them resulted in large losses. We have noted that most of the producers started with small resources; and that the amount of capital 'staked' or risked in automobile production proper was minimized by the wide diffusion of capital burdens that obtained. Of the total number of 181 active producers, approximately thirty per cent retired within three years; more than half dropped out within six years; and two-thirds, within nine years. Many of those who subsequently retired, earned and distributed or reinvested large profits for some years. Bond issues were rare. Few large enterprises, moreover, failed. The present Chrysler Corporation, now highly successful, is the only important producing enterprise that is the product of a receivership. Of the ten largest producers in 1909 (measured by physical volume of output), five were still among the ten largest in 1926; and of the ten leading producers in 1918, eight held places among the first ten in 1926.

However great the danger of rationalization, and however large the rôle of accident, it is almost impossible to escape the conclusion that, transcending and underlying sundry advantages of location, design, finance, or good fortune, the elusive and imponderable qualities of personality have been the most effective causes of conspicuous successes in the automobile industry. Outstanding talent for manufacturing proper was possessed by Henry Ford, Ran-

som E. Olds, Henry M. Leland, Walter E. Flanders, Howard E. Coffin, Walter P. Chrysler, Charles W. Nash, the Dodge brothers, and others. These men paid meticulous attention to design, materials, and factory operation. Ford and Olds still dominate enterprises initiated more than twenty years ago. Leland, after some years of parts-making, developed the Cadillac company. Flanders, likewise previously a parts-maker, was called in by Henry Ford in 1908 to effectuate the latter's newly launched program for greatly expanded production. Subsequently, Flanders performed similar services for a number of other producers, notably Briscoe, Everitt-Metzger-Flanders, Studebaker, and Maxwell. Coffin contributed unusual engineering talent to the Thomas-Detroit, Chalmers, and Hudson enterprises, as well as to the movement for intercorporate standardization of parts and materials in the automobile industry. The Dodge brothers, after many years of parts manufacture for the Ford Motor Company, brought out the Dodge automobile in 1914; within eleven years, their original investment of $5,000,000, augmented only by reinvested earnings, became an enterprise that was sold in 1925 for $170,000,000.[1] Chrysler and Nash, previously Buick factory executives, as well as Flanders and several other men, took over new or moribund enterprises and energized them with striking rapidity into leading producers. This was the case with William C. Durant, who, after a long business experience in the carriage and wagon and other industries, became interested in the failing Buick company, and, within three years, made it the largest automobile producer in the United States:[2] his subsequent exploits with the General Motors, Chevrolet, and United Motors enterprises, were likewise evidence of unusual promotion and organizing talent. John N. Willys performed a feat similar to Durant's, in connection with the Willys-Overland Company. Roy D. Chapin, Howard E. Coffin, and R. B. Jackson developed the Hudson Motor Car Company into one of the world's largest pro-

[1] See Chapter V, below. [2] See Chapter IV, below.

ducers from an original investment of less than $15,000. Henry P. Joy, one of the few men of wealth who entered the industry from unrelated fields, brought to the Packard a passion for excellency which the product has traditionally reflected. Erskine of the Studebaker; Hastings of the Hupp; Jewett of the Paige; Metzger, Briscoe, and others, were men of unusual business ability.

It seems hardly too much to say that individuals capable of large and direct accomplishments constituted the primary condition of outstanding success in the automobile industry. The Ford Motor Company, dominated though it has always been by Henry Ford, owes much to a number of such men;[1] and the presence of unusual personal capacity has been conspicuous in the history of every other prominent producer. Ample rewards went to those, often chosen from the ranks, who demonstrated ability to achieve quick and significant results: salaries ranging as high as or exceeding $100,000 a year; bonuses proportioned to corporate profits; and large stock interests — sometimes enough for effective control — were available to such men.[2] The late James J. Storrow, of Lee, Higginson & Co., formerly chairman of the board of directors of the General Motors Company, illustrated the transcendent importance of personality in the automobile, as in other industries, in explaining to the writer the origin of the Nash Motors Company. Mr. Storrow said:[3]

Charlie Nash had been a good wagon manufacturer, and then a

[1] Cf. Marquis, *Henry Ford: An Interpretation.*

[2] See, for examples, the reorganization agreements of the United States Motor and Maxwell companies. Hugh Chalmers, to take another example, then sales manager of the National Cash Register Company, was given effective control of what became the Chalmers Motor Car Company in order to enlist his services. The General Motors Corporation, it may be noted, now regularly provides for substantial profit-sharing and for stock-ownership, by its executive employees. (Cf. Chapter IV.)

[3] In an interview in the New York offices of Lee, Higginson & Co. on August 27, 1925. The quotation was transcribed from the writer's notes immediately after the interview.

fine Buick factory man. I picked him to be head of General Motors. In five years, he turned a wreck into a concern having $25,000,000 in the bank. When Durant took control of General Motors away from us, I wired Nash to come here, and I said: 'Charlie, you did a fine job of G.M.; if you could do that once, you can do it again; look around for another wreck; I'll back you.' He picked the Jeffery outfit, which we bought for less than $5,000,000. Nash made a hundred million dollars out of it for us in seven years. There was nothing to the Jeffery outfit. Nash was everything. He could do the same with a railroad.

18. International Superiority of the United States

Despite the earlier start of the industry in Europe, notably in France, the United States has become preëminently the world's greatest producer, consumer, and exporter of motor vehicles. American producers accounted for more than eighty-five per cent of the aggregate motor-vehicle production of the world in 1926, the average *monthly* output of the United States being far in excess of the entire year's output of its nearest competitor.[1] Of a total world registration of more than 27,500,000 motor vehicles at the beginning of 1927, nearly eighty per cent were registered in this country.[2] Exports of motor vehicles from the United States and Canada (the latter's output is produced by subsidiaries of United States enterprises almost exclusively) totaled 478,928 in 1926, or more than twice the entire output of any other country.[3] Automotive exports, we have observed, rank first in value among all the manufactures exported from the United States, and are exceeded in value only by raw cotton and mineral oils among all American commodity exports. The comparative importance of the leading automobile-pro-

[1] See Table 6, below. [2] See Table 12, below.

[3] Here, as at other points, slight discrepancies are found between the records of the National Automobile Chamber of Commerce and those of the Bureau of Foreign and Domestic Commerce. The present figure, which includes 99,348 vehicles assembled abroad from units exported as 'parts,' is from the latter. The number of motor-vehicle exports recorded by the former for 1926 was 487,289 (*Facts and Figures of the Automobile Industry*, 1927, p. 42). See Tables 6 and 15, below.

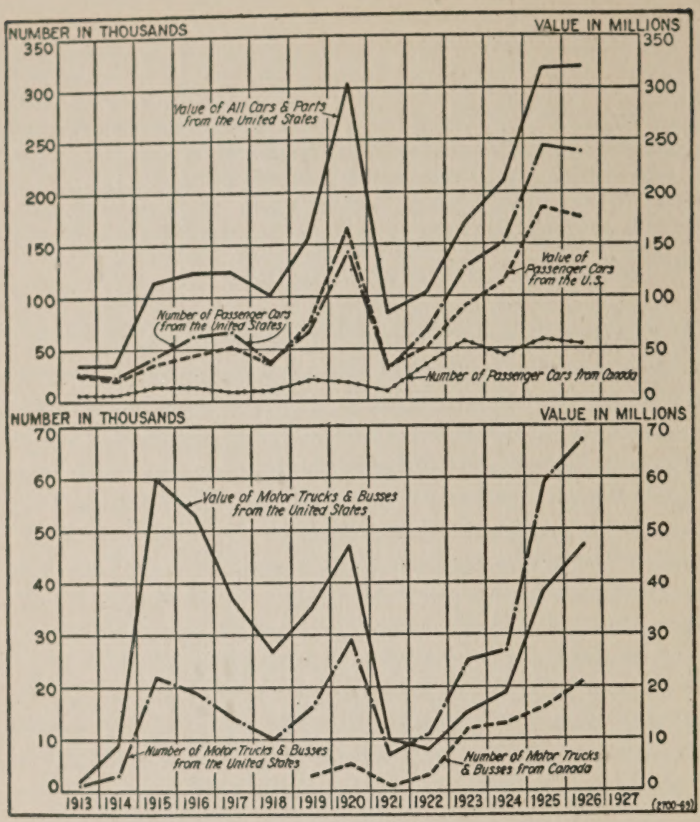
NUMBER IN THOUSANDS
VALUE IN MILLIONS
Value of All Cars & Parts from the United States
Value of Passenger Cars from the U.S.
Number of Passenger Cars (from the United States)
Number of Passenger Cars from Canada
NUMBER IN THOUSANDS
VALUE IN MILLIONS
Value of Motor Trucks & Busses from the United States
Number of Motor Trucks & Busses from the United States
Number of Motor Trucks & Busses from Canada
1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927

CHART IV. AUTOMOTIVE EXPORTS FROM THE UNITED STATES AND CANADA, EXCEPT ELECTRICS

(From *Commerce Yearbook*, 1926, p. 440.)

ducing countries in 1926 is reflected by Table 6, and the growth of American automotive exports, by Chart IV.[1]

It would be difficult to measure all the various influences that account for the preëminence of the United States in the automobile industry; several outstanding considerations, however, may be noted briefly.

[1] Further data bearing upon the American export trade in motor vehicles may be found in Tables 14, 15, and 16.

TABLE 6. OUTPUT OF LEADING AUTOMOBILE-PRODUCING COUNTRIES IN 1926 *

United States	4,223,170	Czecho-Slovakia	7,500
Canada [a]	205,116	Belgium	6,000
France	200,000	Austria	5,290
United Kingdom	198,699	Spain	1,050
Germany	75,000	Hungary	388
Italy	64,760	Denmark	100

[a] Produced by subsidiaries of United States enterprises almost exclusively.

* Figures from the Automotive Division of the Department of Commerce, except that the Canadian total is that given by the Dominion Bureau of Statistics. Since the United States and Canada are the only countries that compile official automobile-production records, the figures presented for the other countries are estimates.

The greater *per capita* income, and, presumably, the wider distribution of moderate and liberal incomes, in the United States, early made possible a larger domestic market in this country than abroad. Adequate and comparable data respecting the *per capita* incomes of various countries are not available, but such data as we have clearly point to the superiority of the United States in this respect. The most trustworthy estimates of comparative annual *per capita* incomes discovered by the writer are for the year 1914 only, and are as follows:

TABLE 7. PER CAPITA INCOME OF VARIOUS COUNTRIES IN 1914 *

COUNTRY	PER CAPITA INCOME
United States	$335 [a]
Australia	263 [a]
United Kingdom	243 [a]
Canada	195 [c]
France	185 [b]
Germany	146 [a]
Italy	112 [c]
Austria-Hungary	102 [c]
Spain	54 [c]
Japan	29 [d]

[a] Estimated as not likely to be inaccurate to a greater extent than 10 per cent.
[b] Estimated as not likely to be inaccurate to a greater extent than 20 per cent.
[c] Estimated as not likely to be inaccurate to a greater extent than 40 per cent.
[d] Estimated as not likely to be inaccurate to a greater extent than 30 per cent.

* From *Income in the United States*, vol. I, Summary, p. 85; published under the auspices of the National Bureau of Economic Research. The sources of these estimates are explained on p. 81 ff. (*ibid.*).

The estimated *per capita* income of the United States for

the years 1909 to 1913, which also may be compared pertinently with the *per capita* incomes of other countries in 1914, was as follows:[1]

1909	$333	1912	$348
1910	349	1913	354
1911	338		

It seems reasonable to conclude that the greater *per capita* income of the United States and the presumably broader distribution of income made the American market a superior one for the sale of automobiles. That this market was obtained by domestic rather than foreign producers is to be explained by various considerations of economic and cultural import.

Throughout the developmental period of American automobile manufacture, the domestic industry was 'protected' by an ad-valorem duty of 45 per cent levied against imported motor vehicles.[2] Superimposed upon shipping costs, this duty offered almost insuperable obstacles to the importation of any but relatively high-priced vehicles. It is tempting, therefore, to point to the American automobile industry as a glowing example of the force of the 'infant industries' argument for tariff protection, alleging that, in the absence of such protection, the early efforts of the American producers would have been smothered by the competition of the more experienced French manufacturers.[3] While tariff protection was not without some influence, such a claim, in the opinion of the present writer, would be of extremely doubtful validity. Imports spur and educate the home producer, as well as compete with him: much was learned by American inventors and manufacturers from imported French machines, and a number journeyed abroad at various times to acquaint themselves with the development of the French art. There was no lack of inventive genius in the United States; there was an abundance of the required natural re-

[1] From *Income in the United States*, p. 144.

[2] Under the heading of 'manufactured metal' in the Dingley tariff.

[3] Cf. Rolls, *Encyclopædia Britannica*, vol. XVIII, p. 914 ff.

sources; and, most of all, this country possessed a manufacturing technique peculiarly well adapted to automobile manufacture, that, even now, is largely lacking abroad. The ease and rapidity with which technical knowledge and material means of production were mobilized for the American automobile industry indicate that, even in the absence of tariff protection, foreign producers could have hoped for but a temporary advantage in the American market.

European automobiles, moreover, were better adapted to the excellent roads of France and England than to those of the United States, Canada, Australia, and other newer, less populous, or less developed countries — a fact which still operates to give the sturdier American vehicle a distinct advantage in such markets. The European tendency toward light-car construction, which might have resulted in the early appearance of low-priced vehicles, was discouraged, moreover, by European governments, which, with an eye to the military possibilities of the motor vehicle, inaugurated various subvention schemes that encouraged the manufacture of heavier, though not more powerful, vehicles. Thus, for some years prior to 1914, the French Government offered a subsidy of about $1400, payable over a period of four years, for each motor vehicle earmarked for potential military use; in Germany, the subsidy amounted to more than $2000 per vehicle; and in England, to about $584.[1] These subsidies, shared in varying proportion by producers and purchasers, coupled with the narrow upper-class markets abroad, served to divert European efforts to the manufacture of relatively costly vehicles. In the United States, in contrast, less expensive automobiles of rugged construction and great power dominated the industry. Even so far as international trade is concerned, the American automobile industry grew up quickly indeed: by 1907, we have observed, the value of American exports of motor vehicles was already exceeding that of imports; and in the years since, the export

[1] Wyatt, 'The Motor Industry and the War,' in the *Quarterly Review*, July, 1915, p. 179; and *The Motor Industry* (Pitman), p. 13 ff.

leadership of the United States has become ever more pronounced.

Certain less tangible considerations of tradition and culture must be credited with an important rôle in the superior development of the American industry. The sparsity of population over great areas in this country for many years, and the rapid development of the means of transportation and communication, had early fostered geographical centralization of American manufactures and the methods of large-scale production. The widespread purchase of standardized commodities, produced in large volume in relatively few centers, became a familiar characteristic of our economic life. This modern development proceeded more slowly abroad, where smaller national areas, made economically distinct by tariff barriers, and where the greater density of population and an older tradition of manufacture to order, had long encouraged local manufactures. Thus, in the United States, with its traditions of large-scale, standardized production, and its greater *per capita* income, the automobile came naturally to be produced in standardized patterns and in large quantities, with consequent great economies; whereas in Europe, with its traditions of individualized products, and its lower *per capita* incomes, the automobile was produced on an incomparably smaller scale of operations and in a great variety of patterns.

The continuing technical superiority of American manufacturing methods is clearly evidenced by the extent to which American producers are able to hurdle European tariff walls, and by their success in operating branch plants abroad in competition with European producers. In July, 1927, there were twenty-five American-owned assembling and manufacturing establishments in foreign countries. The benefits derived from the latter practice are obvious: saving in ocean freight by shipping unassembled parts; saving in duty by reason of the fact that some countries assess a lower rate on parts for assembly than on complete vehicles; the

ease with which distribution may be made to foreign dealers through local plants; the ability to adhere more closely to local preferences in design and equipment; and, in some markets, the advantage accruing from lower costs of labor and materials.

19. Statistical Summaries of the Development of the Industry

The tables following summarize various aspects of the development of the American automobile industry.

Table 8. Volume and Wholesale Value of American Motor-Vehicle Production, by Years *

Year	Number of Cars and Trucks	Wholesale Value
1899 [a]	4,192	$4,899,443
1903	11,000	12,650,000
1904	22,830	24,629,439
1905	25,000	40,000,000
1906	34,000	62,900,000
1907	44,000	93,400,000
1908	65,000	137,800,000
1909	130,986	165,148,529
1910	187,000	225,000,000
1911	210,000	246,000,000
1912	378,000	378,000,000
1913	485,000	443,902,000
1914	569,054	458,957,843
1915	969,930	701,778,000
1916	1,617,708	1,082,378,000
1917	1,873,949	1,274,488,449
1918	1,170,686	1,236,106,917
1919	1,974,016	1,885,112,546
1920	2,204,947	2,232,420,323
1921 [b]	1,660,082	1,258,776,550
1922 [b]	2,665,624	1,787,122,708
1923 [b]	4,079,992	2,582,398,876
1924 [b]	3,606,815	2,318,249,632
1925 [b]	4,312,456	2,957,386,637
1926 [b]	4,428,286	3,163,756,676

* For fiscal year ended June 30, 1900. [b] Includes output of plants located in Canada, making vehicles of United States design.
[a] As compiled by the National Automobile Chamber of Commerce.

TABLE 9. DISTRIBUTION OF AMERICAN MOTOR-VEHICLE PRODUCTION BETWEEN PASSENGER CARS AND TRUCKS *

YEAR	PASSENGER CARS		TRUCKS	
	Number	Wholesale Value	Number	Wholesale Value
1899 [a]	4,192	$4,899,443		
1904	22,419	23,682,492	411	$946,94
1909	127,731	159,918,506	3,255	5,230,02
1910	181,000	213,000,000	(a)	(a)
1911	199,319	225,000,000	10,681	21,000,00
1912	356,000	335,000,000	22,000	43,000,00
1913	461,500	399,902,000	23,500	44,000,00
1914	543,679	413,859,379	25,375	45,098,46
1915	895,930	575,978,000	74,000	125,800,00
1916	1,525,578	921,378,000	92,130	161,000,00
1917	1,745,792	1,053,505,781	128,157	220,982,66
1918	943,436	801,937,925	227,250	434,168,99
1919	1,657,652	1,461,785,925	275,943	423,326,62
1920	1,905,560	1,809,170,963	321,789	423,249,41
1921 [b]	1,514,000	1,093,918,000	146,802	164,858,55
1922 [b]	2,406,396	1,567,003,041	249,228	220,119,66
1923 [b]	3,694,237	2,276,399,270	385,755	305,999,60
1924 [b]	3,243,285	2,011,038,288	363,530	307,211,34
1925 [b]	3,839,302	2,523,642,558	473,154	433,744,07
1926 [b]	3,936,933	2,730,385,507	491,353	433,371,16

[a] For fiscal year ended June 30, 1900. [b] Includes output of plants located in Canada making vehicles of United States design.

(a) Separate records of truck production for the years prior to 1904 and between 1905 and 1910, are not available; a total of 10,374 trucks, valued at wholesale at $20,485,500, was produced between 1903 and 1910, inclusive.

* As compiled by the National Automobile Chamber of Commerce.

TABLE 10. GROWTH IN AMERICAN MOTOR-VEHICLE REGISTRATION *

YEAR	MOTOR-VEHICLE REGISTRATIONS	NUMBER OF REGISTRATIONS TO 1000 POPULATION	YEAR	MOTOR-VEHICLE REGISTRATIONS	NUMBER OF REGISTRATIONS TO 1000 POPULATION
1913	1,258,062	13	1920	9,231,941	86
1914	1,711,339	17	1921	10,463,295	96
1915	2,445,664	24	1922	12,238,375	111
1916	3,512,996	35	1923	15,090,936	134
1917	4,983,340	48	1924	17,591,981	154
1918	6,146,617	59	1925	19,937,274	172
1919	7,565,446	72	1926	22,001,393	187

* From the *Census of Manufactures*, 1925.

TABLE 11. CENSUS SUMMARIES OF GROWTH OF MOTOR VEHICLE AND MOTOR-VEHICLE BODIES AND PARTS INDUSTRIES *

YEAR	ESTABLISHMENTS	WAGE-EARNERS (average number)	PRIMARY HORSE-POWER	WAGES	COST OF MATERIALS	VALUE OF PRODUCTS	VALUE ADDED BY MANUFACTURE
				Thousands of dollars			
THE TWO BRANCHES							
1904	178	12,049	9,966	7,159	13,151	30,034	16,882
1909	743	75,721	74,253	48,694	131,646	249,202	117,556
1914	1,271	127,092	172,875	101,927	356,208	632,831	276,624
1919	2,830	343,115	539,093	491,121	1,940,679	3,080,074	1,139,395
1921	2,359	212,777	(1)	318,753	1,321,027	2,079,404	758,377
1923	2,471	404,886	860,633	659,877	2,711,571	4,176,440	1,464,870
1925	1,655	426,110	1,172,013	713,931	2,970,913	4,721,403	1,750,489
MOTOR VEHICLES							
1899	57	2,241	2,979	1,321	1,804	4,748	2,944
1904	121	10,239	7,517	6,179	11,658	26,645	14,987
1909	265	51,294	49,772	33,180	107,731	193,823	86,092
1914	300	79,307	104,963	66,934	292,598	503,230	210,633
1919	315	210,559	282,323	312,166	1,578,652	2,387,903	809,252
1921	385	143,658	(1)	221,974	1,107,062	1,671,387	564,325
1923	351	241,356	435,545	406,730	2,147,463	3,163,328	1,015,865
1925	297	197,728	509,758	341,210	2,108,192	3,198,123	1,089,931
MOTOR-VEHICLE BODIES AND PARTS [a]							
1904	57	1,810	2,449	980	1,493	3,388	1,895
1909	478	24,427	24,481	15,513	23,914	55,379	31,465
1914	971	47,785	67,912	34,993	63,610	129,601	65,991
1919	2,515	132,556	256,770	178,956	362,027	692,171	330,143
1921	1,974	69,119	(1)	96,779	213,965	408,017	194,052
1923	2,120	163,530	425,088	253,147	564,107	1,013,112	449,005
1925	1,358	228,382	662,255	372,721	862,721	1,523,280	660,558

(1) Not called for in 1921 Census.

[a] The importance of this branch of the automobile industry is not adequately reflected by the Census data because of 'the large number of establishments in other industries, which manufacture engines, motors, parts of machinery, tools, rubber tires, and other parts and accessories of automobiles.' (Cf. *Census of Manufactures*, 1919.)

* From the *Census of Manufactures*, 1921, 1923, 1925. This data must be interpreted in accordance with the classifications and practices of the Census Bureau.

TABLE 12. NUMBER OF CARS, TRUCKS, AND BUSSES REGISTERED, AND NUMBER OF INHABITANTS PER VEHICLE, FOR PRINCIPAL COUNTRIES *

COUNTRY	NUMBER OF CARS	INHABITANTS PER CAR	COUNTRY	NUMBER OF CARS	INHABITANTS PER CAR
North America:			Europe — *continued*		
United States (continental)	22,137,334	5	Rumania	16,700	1,003
Canada	820,220	11	Portugal	15,735	383
Cuba	38,038	89	Russia (total U.S.S.R.)	20,162	6,883
Mexico	51,751	275	Spain	135,000	161
South America:			Sweden	99,220	61
Argentina	222,610	44	Switzerland	51,560	76
Brazil	81,100	416	United Kingdom	1,043,651	43
Chile	18,000	217	Asia:		
Uruguay	30,060	54	British Malaya	26,868	124
Europe:			China [a]	18,529	23,531
Austria	20,600	317	Dutch East Indies	47,000	1,050
Belgium	97,213	80	India	81,925	3,015
Czecho-Slovakia	27,100	518	Japan [b]	45,600	1,297
Denmark	80,750	42	Philippine Islands	22,325	499
Finland	17,741	197	Oceania:		
France	891,000	44	Australia	374,717	16
Germany	319,000	196	Hawaii	31,135	10
Irish Free State	35,647	89	New Zealand	123,224	11
Italy	128,800	308	Africa:		
Netherlands	69,094	106	Algeria	27,851	208
Norway	30,320	90	Egypt	17,740	783
Poland	19,400	1,468	Union of South Africa	76,550	95

[a] China proper. [b] Japan proper.

* From *Commerce Yearbook*, 1926, United States Department of Commerce, p. 446.

TABLE 13. PASSENGER-CAR PRODUCTION, BY RETAIL PRICE GROUPS, UNITED STATES AND CANADA *

YEAR	UNDER $1000		$1000 TO $2000		$2000 TO $3000		$3000 AND OVER	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1913	289,400	62.7	131,500	28.5	23,100	5.0	17,500	3.8
1919	976,400	58.9	578,500	34.9	69,600	4.2	33,200	2.0
1920	1,118,600	59.4	619,600	32.9	81,000	4.3	64,000	3.4
1921	1,044,700	69.0	352,800	23.3	81,700	5.4	34,800	2.3
1922	1,774,400	74.0	522,700	21.8	59,900	2.5	40,800	1.7
1923	3,034,900	81.6	609,900	16.4	44,600	1.2	29,800	.8
1924	2,391,900	73.3	786,100	24.1	42,400	1.3	42,400	1.3
1925	2,808,500	73.2	896,000	23.4	71,000	1.8	60,300	1.6
1926	3,025,700	77.0	770,200	19.6	62,900	1.6	70,700	1.8

* From *Commerce Yearbook*, 1926, p. 436, United States Department of Commerce, as compiled by Automotive Industries.

TABLE 14. UNITED STATES IMPORTS AND EXPORTS OF MOTOR VEHICLES *

YEAR [a]	IMPORTS		EXPORTS	
	Number	Value	Number	Value
1906	1,106	$3,844,505	1,850	$3,497,016
1907	1,176	4,041,025	2,862	4,890,886
1908	1,045	2,500,000	2,477	4,656,991
1909	1,624	2,905,391	3,184	5,387,021
1910	1,473	2,851,446	6,926	9,548,700
1911	972	2,098,481	15,807	15,924,361
1912	868	1,999,587	23,720	23,703,989
1913	492	1,154,873	26,889	27,030,451
1914	296	493,305	25,765	28,507,464
1915	221	327,296	63,958	94,884,393
1916	1,429	770,319	80,843	96,673,108
1917	78	112,440	80,235	88,628,141
1918	73	39,733	47,244	63,093,244
1919	117	123,025	82,730	109,125,964
1920	926	1,026,518	171,644	212,031,702
1921	522	876,163	38,430	42,817,675
1922	483	802,285	78,234	59,320,724
1923	853	884,125	151,894	106,010,330
1924	604	841,524	178,732	131,733,983
1925	678	1,079,560	302,931	222,589,000
1926	813	1,352,984	305,256	223,560,000

[a] Figures for the years 1906 to 1910, inclusive, are for the fiscal years ended June 30; the remaining figures are for the calendar years.

* Exclusive of exports of Canadian branches and of part of the output of foreign assembling plants. Data from the Bureau of Foreign and Domestic Commerce.

TABLE 15. EXPORTS OF MOTOR VEHICLES AND PARTS FROM THE UNITED STATES AND CANADA *

[Values in thousands of dollars]

YEAR	PASSENGER CARS [a]		MOTOR TRUCKS AND BUSSES [a]		AUTOMOBILE ENGINES		PARTS	TOTAL VALUE
	Number	Value	Number	Value	Number	Value	Value	
FROM UNITED STATES								
1913	25,880	25,344	1,009	1,687	8,815	1,630	6,270	34,931
1919	67,145	73,701	15,585	35,425	31,358	4,738	42,562	156,426
1920	142,508	165,256	29,136	46,776	30,581	5,032	86,198	303,262
1921	30,950	32,534	7,480	10,336	9,632	1,821	39,059	83,749
1922	66,791	51,050	11,443	8,271	44,986	5,133	38,298	102,751
1923	127,035	90,692	24,859	15,317	40,868	5,342	58,975	170,326
1924	151,380	112,535	27,352	19,199	30,768	4,188	73,761	209,684
1925	244,306	184,886	58,625	37,703	145,848	15,290	80,311	318,190
1926	238,481	176,481	66,775	47,079	118,428	12,522	83,928	320,011
FROM CANADA								
1913	5,997	3,395	(a)	(a)	(a)	(a)	211	3,606
1922	35,394	21,060	2,564	1,095	(a)	(a)	1,926	24,080
1923	57,481	29,325	12,439	4,504	(a)	(a)	3,530	37,359
1924	43,883	22,080	12,772	4,429	(a)	(a)	4,992	31,501
1925	58,005	27,795	16,146	5,250	(a)	(a)	6,373	39,418
1926	53,628	25,780	20,696	6,957	(a)	(a)	5,485	38,222

(a) Unknown

[a] The totals of unit vehicle exports do not include a large, though uncertain, number of vehicles that have been assembled abroad from exported parts, but that have not been so reported. It is the practice of all Canadian producers and of most American producers to declare exports of parts, whenever possible, as the equivalent of so many complete vehicles. A varying proportion of foreign assemblies, however, is the product of exported parts that have not been so declared; such assemblies are not commonly included in either export or home production totals, whereas the former are. On the other hand, to add all foreign assemblies to the home production and unit export totals involves duplication of vehicle units already counted, though exported in the form of parts. A similar distinction must be observed in computing the value of American automotive exports. In the first six months of 1927, the Bureau of Commerce found that between 43 and 55 per cent of foreign assemblies of American automobiles were made up of exported parts that had not been declared as the equivalent of so many complete vehicles. (Cf. *Commerce Reports*, September 12, 1927, p. 657 ff.) Such assemblies should be added to the home production and export totals (United States and Canada). The total unit volume of foreign assemblies of American vehicles for the years 1922 to 1926, as compiled by the Automotive Division of the Bureau of Foreign and Domestic Commerce, was as follows:

1922	68,858	1924	131,745
1923	106,110	1925	139,391
		1926	99,348

* From *Commerce Yearbook*, 1926, p. 441.

TABLE 16. EXPORTS OF MOTOR VEHICLES FROM THE UNITED STATES BY PRINCIPAL COUNTRIES OF DESTINATION, 1926 *

COUNTRY	NUMBER	VALUE (thousands of dollars)
Total	305,236	223,560
Australia	64,110	44,329
Canada	28,440	24,365
Argentina	28,027	19,165
Brazil	22,589	12,893
British Africa	18,473	14,948
Denmark	13,421	7,193
Mexico	12,011	8,285
New Zealand	10,822	8,775
United Kingdom	10,721	7,840
Belgium	8,468	7,094
Spain	7,283	6,193
Cuba	6,663	4,505
Philippine Islands	5,824	3,786
Sweden	3,976	3,891
Germany	3,220	3,439
All others	64,188	46,859

* Data from *Commerce Yearbook*, 1926, p. 443 ff. Exclusive of units exported as 'parts' and assembled abroad.

TABLE 17. RELATIVE IMPORTANCE OF LEADING STATES IN THE AUTOMOBILE INDUSTRY *

YEAR	ESTABLISHMENTS	WAGE-EARNERS (av. number)	VALUE OF PRODUCTS
1904			
United States total	178	12,049	$30,034,000
Michigan	33	2,735	7,997,000
Ohio	22	2,722	6,358,000
New York	35	1,849	4,260,000
Indiana	11	816	1,639,000
1914			
United States total	1,271	127,092	$632,831,000
Michigan	205	67,538	398,289,000
Ohio	102	18,752	85,711,000
New York	247	12,122	42,115,000
Indiana	86	7,219	29,389,000
1925			
United States total	1,653	426,110	$4,721,402,556
Michigan	176	234,492	2,442,197,465
Ohio	184	43,791	514,775,843
New York	196	26,012	261,445,894
Indiana	104	28,026	233,589,813

* *Census of Manufactures.* Includes motor vehicle and motor-vehicle bodies and parts industries; the figures, particularly for value of products, therefore involve considerable duplication.

CHAPTER III

THE FORD MOTOR COMPANY

1. Volume and Importance of Business

The Ford Motor Company, judged by physical volume of output and by amount of invested capital, is the largest producer of automobiles in the world.[1] The first unit of its famous 'Model T' was produced on October 1, 1908, some five years after the Company's incorporation; the millionth unit of this model left the factory on December 10, 1915; between this date and June 4, 1924, 9,000,000 more were produced; and on May 26, 1927, the fifteen-millionth 'Model T' rolled off the assembly lines.[2] During the fourteen years ended in 1926, the output of the Ford Motor Company averaged well above forty per cent of the aggregate volume of American motor-vehicle production. A comparison of the Company's annual output during this period with that of the American industry as a whole is presented in Table 18.

While the Ford Motor Company is primarily a producer of finished automobiles, motor trucks, and automotive farm tractors, a vast program of industrial integration, initiated some years ago, has carried its operations into many fields; and to-day it is a business with far-flung properties and diverse, though related, interests. The aim and result of this program was expressed in a pamphlet entitled 'Ford Products,' issued by the Company in August, 1924:

> A self-contained industry produces Ford cars, trucks, and Fordson tractors. It is the Ford industry, whose resources go back to the standing timber and unmined ore. They include Ford-owned coal mines, blast furnaces, glass factories, huge manufacturing units, assembly plants, and an organization of trained men whose combined

[1] See Table 1, above, for the comparative position of the Ford Motor Company as respects amount of invested capital.

[2] From various public announcements of the Company.

TABLE 18. OUTPUT OF FORD MOTOR COMPANY COMPARED WITH TOTAL AMERICAN OUTPUT, 1913–26, INCLUSIVE *

YEAR	FORD OUTPUT [a]	TOTAL AMERICAN OUTPUT [b]
1913	181,951	485,000
1914	264,972	569,054
1915	283,161	969,930
1916	534,108	1,617,708
1917	785,433	1,873,949
1918	708,355	1,170,686
1919	939,434	1,974,016
1920	1,074,336	2,204,947
1921	1,013,958	1,660,082
1922	1,351,333	2,655,624
1923	2,090,959	4,079,992
1924	1,993,419	3,606,815
1925	1,990,995	4,312,456
1926	1,447,915	4,428,286

[a] Fiscal years ended September 30, for 1913 and 1914; July 31, for 1915 to 1918, inclusive; remaining figures for calendar years except that 1919 figure is for the seventeen months ended December 31, 1919. Figures for 1913 to 1923, inclusive, from *The Ford Industries*, published by the Company; the remainder, from *Moody's Manual of Industrials*, 1927.

[b] As reported by the National Automobile Chamber of Commerce; for calendar years; includes Canadian production.

* The data are not strictly comparable for the years up to 1920 because of the various fiscal periods employed by the Ford Company, as contrasted with the calendar year basis of the American totals.

activities comprehend every phase of human endeavor. From widely scattered Ford-owned sources, raw materials are brought by Ford transportation units to Ford factories where they are refined, moulded, machined and assembled under the most favorable of industrial conditions. . . .

The chief manufacturing units of the Company are located in Highland Park and Fordson, Michigan, on the outskirts of Detroit, and employ approximately 100,000 workers. In addition, the Company operates thirty-six branch assembly and manufacturing plants in the United States, and, through foreign associated companies, it conducts manufacturing and assembling operations in the principal countries of Europe and South America.[1] Legal ownership of the great

[1] In 1924, the domestic branches of the Company employed 24,323 workers, and the foreign branches, 11,028, according to a Company announcement quoted in the *Detroit News* of February 11, 1924.

bulk of the Ford properties is vested directly in the Ford Motor Company, a Delaware corporation. The Ford Motor Company of Canada, Ltd., is a separate corporate entity, as are the other foreign Ford enterprises, control of which is maintained through the stock-ownership of Henry and Edsel Ford. Control of the Detroit, Toledo & Ironton Railroad, acquired in 1920, is maintained in the same way. The Michigan Iron, Land & Lumber Company, incorporated in September, 1920, and the Fordson Coal Company, incorporated in February, 1923, are direct subsidiaries of the Ford Motor Company, which owns all of their capital stock. This is likewise the case with the Lincoln Motor Company, acquired at a receiver's sale on February 4, 1922, and now operated as a 'division' of the Ford Motor Company.

The Ford organization may be said to include more than the Company's immediate interests and those of its subsidiaries. More than 52,000 sales agencies and service stations, individually owned by their operators, are directly supervised by the Company's executives. The Company determines the retail prices of its cars, trucks, and parts; suggests the design of sales rooms and service quarters; fixes the charges for repair work; and supervises the accounting system and advertising policy of its dealers.[1] In its financial crisis of 1920–21, the Company felt free to call upon its dealers to absorb shipments of cars in excess of contracted allotments, exacting immediate cash payment, and thereby shifting to its dealers much of the burden of the emergency financing.[2] The Ford organization may also be said to include a number of independent parts-makers whose chief or exclusive customer is the Ford Motor Company. In many cases, the latter purchases the necessary materials, supplies the patterns, investigates the accounts to determine upon prices, and sometimes helps to finance the business of such

[1] Cf. *The Ford Industries*, published by the Company, p. 125; and Henry Ford, *My Life and Work*, p. 60.

[2] Cf. the *Detroit News* of July 22, 1921, in which James Swineheart reports an interview with Henry Ford.

suppliers.[1] 'There are hundreds of concerns from which we take the major part of their output . . .' Henry Ford was quoted as saying in July, 1921.[2]

The chief commercial products of the Ford Motor Company are the Ford automobile, produced in various body styles; the Ford truck; the Fordson farm tractor; the Lincoln automobile; and, very recently, the Ford (Stout Metal) airplane. The most important of these by far, needless to say, is the Ford passenger automobile, which has been produced and sold in incomparably greater quantities than the product of any other automobile manufacturer. The distinctive characteristic of the Ford cars, from an economic standpoint, is that they have long been the lowest-priced automobiles produced in the United States, and, therefore, in the world. For many years, all other automobiles retailed at prices exceeding those of the Ford cars by $200 or more. The productive technique that made possible its low prices, and the enormous volume of demand that resulted from them, made the Ford Motor Company the largest producer of automobiles in the world. More than 15,000,000 Ford cars and trucks, we have noted, have been produced and sold; the tenth million required only 132 working days to produce.[3]

2. Origin of Ford Motor Company

Unlike the United States Steel Corporation, the General Motors Corporation, the great railroad enterprises, and other very large business organizations, the Ford Motor Company acquired its present enormous assets and achieved its present position in industry neither by combinations and consolidations nor by the aid of a large body of investors. Competitive superiority in the largest field of automobile

[1] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

[2] *Detroit News*, July 22, 1921.

[3] Announcement of the Ford Motor Company, quoted in the *Detroit News* of June 5, 1924.

manufacture — the field of low-priced automobiles — and the continuous reinvestment of much of the large profits of the enterprise, are the principal factors that explain the present position of the Ford Motor Company.

Henry Ford, the founder of the Company, first completed the construction of a gasoline automobile in 1893, when only one other gasoline vehicle had been built in the United States. After devoting five years to the improvement of his model, Ford resigned from his position as chief engineer of the Detroit Edison Company, and set out to interest capital in the manufacture of his vehicle. By entering his model in a number of automobile races, he attracted the attention of a small group of men, and, with their aid, organized the Detroit Automobile Company, in 1898. This company was capitalized at $50,000, of which $10,000 was contributed in cash.[1]

At the end of three years, during which time the Company had produced two cars, Ford, dissatisfied with his one-sixth interest and consequent lack of control, sold his stock and resigned from his position as the Company's chief engineer. The Detroit Automobile Company later became in turn the Cadillac Automobile Company and the Cadillac Motor Car Company.

A second Ford company, the Henry Ford Automobile Company, was incorporated in Michigan on November 23, 1901, with a paid-in capital of $38,000, of which Henry Ford was credited with $10,000.[2] This company was dissolved in less than a year, the victim of dissension among stockholders and officers, most of whom, it is said, insisted upon the manufacture of large and expensive automobiles as against Ford's desire to produce low-priced cars in large quantities.[3]

Ford now entered into an arrangement with Alexander

[1] Arnold and Faurote, *Ford Methods and the Ford Shops*, p. 13.

[2] Annual report of the Henry Ford Automobile Company for 1901; Michigan Secretary of State.

[3] *Henry Ford's Own Story as Told to Rose Wilder Lane*, p. 112 ff.

Y. Malcomson, a prosperous Detroit coal dealer, whom he had met during his employment with the Detroit Edison Company, whereby, in return for a 25.5 per cent interest in the projected Ford Motor Company, Malcomson was to guarantee the financing of the production of the Ford automobile up to the amount of $3000.[1] Malcomson was committed for $7000 before the Ford Motor Company was finally organized.

The Ford Motor Company was incorporated in Michigan on June 16, 1903, with an authorized capitalization of $150,000, all common stock, of which $100,000 was issued. Of the latter, $49,000 was listed as issued for cash; $40,000 for 'letters patent issued and applied for'; $10,000 for machinery and stock; and $1000 for 'contracts for supplies.'[2]

Ford and Malcomson each received $25,500 of stock; John S. Gray, president of the German-American Savings Bank of Detroit, subscribed for $10,500, with the presidency of the Company, and with Malcomson's personal guarantee against loss, offered as inducements;[3] John W. Anderson and Horace H. Rackham, Malcomson's attorneys, each subscribed for $5000; John F. Dodge and Horace E. Dodge, proprietors of a machine shop, subscribed for $5000 each, paying for their subscriptions with promissory notes which they later met from their profits on orders filled for the new company;[4] James Couzens, then a clerk in Malcomson's coal office, paid $1000 in cash and $1500 in promissory notes for $2500 of stock; Albert Strelow, Vernon E. Fry, and C. H. Bennett each subscribed for $5000; and C. J. Woodall, Malcomson's bookkeeper, subscribed for $1000. Only $28,000 in cash was actually received by the Company, and, according to a Ford publication issued in September, 1920, this was all the cash ever paid in on its capital stock.[5]

[1] Benson, *The New Henry Ford*, p. 102.

[2] Articles of incorporation. [3] Benson, p. 121.

[4] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

[5] 'The company was capitalized for $100,000, but no more than $28,000 was ever paid into the treasury of the company.' (From *Facts from Ford*, p. 6, published by the Ford Motor Company.)

Operations were begun in June, 1903, in rented quarters in the rear of a carpenter's shop. A small amount of space was sufficient because engines, chassis, bodies, and most of the assembling operations were to be completed by independent establishments, the work of the Ford Motor Company being confined to a small amount of final assembling and to sales. The Company's plan of operations is described in some detail in the following quotation, taken from a letter written just prior to the incorporation by Anderson, one of the stockholders mentioned above, in which letter Anderson asked his father to procure a loan of $5000 to enable the son to make good his subscription to the Company's stock:[1]

. . . After canvassing the matter thoroughly, . . . they determined to enter into contracts with various concerns to supply the different parts and simply do the assembling themselves.

So they entered into a contract with the Dodge brothers, who own a machine shop here, to manufacture the automobile complete — less the wheels and bodies — for $250 apiece, or $162,500 for the 650 machines which are to be delivered at the rate of 10 a day, commencing July 1, if possible, and all by October 1. I drew the contracts, so know all about it.

Now, to comply with this contract, which was made last October, Dodge Brothers had to decline all outside orders and devote the entire resources of their plant to the turning out of these automobiles. They were paid only $10,000 on account, and had to take all the rest of the risk themselves. They had to borrow $40,000, place orders for castings all over the country, pay their men from last October (they have a large force), and do everything necessary to manufacture all the machines before they could hope to get a cent back. . . .

In addition to this, contracts for the remaining parts of the automobile — the bodies, seat cushions, wheels and tires — were made so they were to be supplied as wanted. The bodies and cushions by the C. R. Wilson Carriage Co. at $52 apiece and $16 apiece, respectively. The wheels by a Lansing, Mich., firm at $26 a set (4 wheels). The tires by the Hartford Rubber Co. at $40 a set (4 wheels).

They found a man from whom Mr. Malcomson rents a coal yard on the Beltline Railroad with a spur track running into it. He agreed to erect a building, designed by Mr. Ford for their special use, for assembling purposes (which will cost between $3000 and $4000), and

[1] The letter is quoted in full in the *Detroit News* of January 14, 1927.

rent it for three years to Mr. Ford and Mr. Malcomson at $75 a month. . . .

To this assembling plant are shipped the bodies, wheels and tires and the machines from Dodge Brothers, and here the workmen, ten or a dozen boys, at $1.50 each and a foreman, fit the bodies on the machines, put the cushions in place, put the tires on the wheels, the wheels on the machines and paint them and test them to see they run 'O.K.,' and it is all ready for delivery. Now this is all there is to the whole proposition.

Now, as to the investment feature. You will see there is absolutely no money to speak of tied up in a big factory. There is the $75 a month rent for three years, and a few machines necessary in the assembling factory. All the rest is done outside and supplied as ordered, and this, of course, is a big saving in capital outlay to start with.

The machines sell for $750, without a tonneau. With a tonneau the price is $850. This is the price of all medium-priced machines and is standard. It is what the Cadillac and Great Northern sell for here, and what other machines elsewhere sell for. Now the cost, figured in the most liberal possible estimate, is as follows:

Machine (fixed by contract)	$250
Body (fixed by contract)	52
Wheels (fixed by contract)	26
Upholstering (fixed by contract)	16
Tires (all these fixed by contract)	40
Cost of assembling (this includes wages, rent, insurance, and all incidentals at the factory)	20
Cost of selling (this includes advertising, all salaries, commissions, etc., 20 per cent on each automobile — it will be nearer to 10 or 12 per cent	150
Cost without tonneau	$554
Cost of tonneau	50
Total cost with tonneau	$604
Selling price with tonneau	850
Cost price with tonneau	604
	$246
Throwing off (for any possible extra contingency)	46
Profit on each with tonneau	$200
Selling price without tonneau	750
Cost price without tonneau	554
	$196
Throwing off (for any possible extra contingency)	46
Profit on each without tonneau	$150

On the season's output of 650 machines it means a profit of

$97,500, without a tonneau, and more in proportion to those sold with tonneaus. . . .

Now, the demand for automobiles is a perfect craze. Every factory here (there are three including the Olds — the largest in the country — and you know Detroit is the largest automobile center in the United States), has its entire output sold and cannot begin to fill orders. Mr. Malcomson has already begun to be deluged with orders, although not a machine has been put on the market and will not be until July 1. . . . And it is all spot cash on delivery, and no guarantee or string attached of any kind.

The Ford Motor Company was a business success from the start. Sales for the three-and-one-half-month period between June 16 and September 30, 1903, totaled $132,482, and resulted in a net profit of $36,958.[1] On October 1, 1903, a dividend of 2 per cent was paid; a month later, 10 per cent; in January, 1904, 20 per cent; and six months later, 68 per cent.[2] In a little more than fifteen months from the date of incorporation, the Ford Motor Company had paid dividends totaling 100 per cent of the issued capital stock.

As soon as commercial production had been started, the Company began the construction of special racing cars, for the widespread popular interest in automobile racing caused great publicity to be given to enterprises producing the winning cars, and 'practically every noteworthy automobile company entered its cars in the races.'[3] Henry Ford personally piloted the Ford racers in a number of national contests, and later delegated this task to Barney Oldfield, one of the most successful of the professional racing pilots.

During its first year of operation, the Company produced a single model, selling at $950 f.o.b. Detroit. During the second year, influenced partly by the enthusiasm for racing, perhaps, and partly by the importunities of some of the stockholders,[4] the Company produced three models, one of which was a large six-cylinder motor car selling at $2000;

[1] Benson, p. 131.

[2] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

[3] Ford Motor Company, *Facts from Ford*, p. 6. [4] Benson, p. 145.

the others were modifications of its first model, and sold at $900 and $1000 respectively. In the third year, ended September 30, 1906, the Company produced only the $2000 and $1000 models.

3. Henry Ford's Acquisition of Control

During this year internal dissension among the stockholders resulted in the purchase by Henry Ford of the 255 shares of stock held by Alexander Y. Malcomson. A short time later, Ford purchased the 10 shares of C. J. Woodall; and in 1907, he purchased 65 of the 150 shares sold by three other small stockholders, bringing his holdings up to 57 per cent of the Company's issued stock. James Couzens purchased the other 85 shares sold at this time.[1] In the mean time, the death of John S. Gray, president of the Company, resulted in the transfer of his stock to the John S. Gray Estate and in the election of Henry Ford to the presidency of the Company.

During its fourth fiscal year, ended September 30, 1907, the Company discontinued its expensive models and produced two types of low-priced vehicles, retailing at $600 and $700, respectively. Striking gains in production, receipts, and profits accompanied the change: output jumped from 1599 to 8759; receipts, from $1,491,626 to $5,773,851; and profits, from $102,398 to $1,124,675. The following year, however, the Company reintroduced its $2000 model, and sold its smaller cars at $700 and $750. Its output suffered by the change, but its profits increased. The results of the Company's operations during its first five years are summarized in Table 19.

The successful character of the Company's operations is readily reflected by the table. In addition to the profits reinvested in the business, which caused the Company's net worth to grow from less than $100,000 to more than $2,000,000 in five years, the Company had paid dividends approxi-

[1] The annual report of the Ford Motor Company to the Michigan Secretary of State, for 1907, shows these changes.

mating 100 per cent on its outstanding capital stock during each of these years.[1] Writing of the Company's condition at this time, Henry Ford says, 'We had plenty of money. Since the first year we have practically always had plenty of money. We sold for cash, we did not borrow money, and we

TABLE 19. OUTPUT, RECEIPTS, PROFITS, AND NET WORTH OF FORD MOTOR COMPANY, 1903–08 *

YEAR [a]	OUTPUT	RECEIPTS	PROFITS	NET WORTH
1904.....	1,708	$1,336,800	$283,037	$220,758
1905.....	1,695	1,914,903	290,194	231,807
1906.....	1,599	1,491,626	102,398	297,867
1907.....	8,759	5,773,851	1,124,675	1,038,822
1908.....	6,181	4,701,298	1,150,983	2,028,553

[a] For fiscal years ended September 30, except that the 1904 figures are for the period from June 8, 1903, to September 30, 1904, and that the net worth figures are those reported as of September 30 of each of the years.

* Sources: Output figures are those reported by the Company in *The Ford Industries:* figures for profits and receipts were taken from the books of the Company by Benson, and reproduced in *The New Henry Ford*, p. 143; net worth figures represent the net equity of the stockholders as disclosed in the annual reports of the Company to the Michigan Secretary of State.

sold directly to the purchaser.'[2] In addition, it may be noted, the Company received advance deposits from dealers on all orders, and, whereas it received immediate cash payment for its product, its own purchases of materials and parts were made on the usual thirty- and sixty-day credit basis.[3]

By the end of its fifth year of operation, the Company had already laid the foundations for its present domestic sales system, and for the development of foreign business. Carefully selected agents, who were required to maintain service facilities for owners of Ford cars, and whose advertising and soliciting were supervised by the Company, were appointed

[1] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

[2] Ford, *My Life and Work*, p. 59. It should be noted that the Company sold very little of its product directly to consumers, but regularly sold its cars to independent sales dealers, whom it termed 'agents.'

[3] See letter of James Couzens to writer, quoted elsewhere above.

in every section of the country.[1] Ford cars were entered in races and endurance contests in England and in France, and every attempt was made to stimulate sales in these countries.[2] The Ford Motor Company of Canada, Ltd., was incorporated in the province of Ontario on April 17, 1904. In exchange for half of its $125,000 capital stock, tendered to the Ford Motor Company of Michigan, the Canadian company was granted exclusive rights to the manufacture and sale of the Ford automobile and allied products throughout the British Empire, with the exception of England, Scotland, and Ireland, and the privilege of using all the devices and improvements of the American company without cost. The right to the English field was reserved for the Ford Motor Company, England, Ltd., organized three years later, the entire capital stock of which, as was the case with subsidiaries later organized in other foreign countries, was retained by the Ford Motor Company of Michigan in the pro-rata interest of its stockholders.[3]

By the end of the fifth year, six of the original thirteen stockholders had sold their stock to others of the original investors; the remaining seven stockholders now held stock as follows:[4]

Henry Ford	585 shares
James Couzens	110
The Gray Estate	105
John F. Dodge	50
Horace E. Dodge	50
J. W. Anderson	50
H. H. Rackham	50
	1000 shares

In October, 1908, the charter of the Company was amended, increasing the authorized capital stock from $150,000 to $2,000,000; and on October 22, the board of directors declared a stock dividend of $1,900,000. Shortly

[1] Ford, *My Life and Work*, p. 59 ff. [2] *Ibid.*

[3] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

[4] Annual report of Ford Motor Company, as of September 30, 1908.

thereafter a regular cash dividend policy of five per cent monthly, payable quarterly, was instituted.[1]

4. Expansion

With the year 1909, the Ford Motor Company began a remarkable series of strides in production, receipts from sales, and in profits, which placed it far in the forefront of all motor-car manufacturers.

In the latter part of 1908, the Company contracted for the services of Walter E. Flanders, then an outstanding expert in machine production, with the view of greatly augmenting its output. Henry Ford had designed a new automobile model — the famous 'Model T,' and was prepared to initiate a radical program of quantity production. Flanders was to receive a bonus of $20,000 in addition to his salary if the Company's output in the year ending September 30, 1909, reached 10,000 cars.[2] The actual output was 10,660, the Ford Motor Company being the first automobile manufacturer to achieve such a volume of output.

During the next five years, the business of the Company increased by leaps and bounds. Its annual output was multiplied by seventeen; its net profits increased by nearly 900 per cent; and, despite the payment of special dividends aggregating $15,000,000 in addition to regular dividends of 60 per cent annually,[3] the net worth of the Company increased by more than 1300 per cent. The results of its operations during these five years are summarized in Table 20.

5. The Selden Patent Litigation

The growth of the Ford Motor Company up to the year 1911 took place during the pendency of the bitterly contested patent suit brought against the Company by the owners of the Selden patent. The Ford Motor Company, then just be-

[1] Dodge v. Ford Motor Company, 204 Mich., 464.

[2] Doolittle, *Romance of the Automobile Industry*, p. 152.

[3] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

TABLE 20. OUTPUT, RECEIPTS, PROFITS, AND NET WORTH OF FORD MOTOR COMPANY, 1909–13 *

YEAR [a]	OUTPUT	RECEIPTS	PROFITS	NET WORTH
1909	10,660	$9,041,291	$3,125,876	$2,101,723
1910	19,051	16,711,299	4,127,208	4,408,961
1911	34,979	24,656,768	7,288,303	9,956,535
1912	76,150	42,477,677	13,552,239	16,867,366
1913	181,951	89,108,885	27,001,203	30,259,214

[a] Fiscal years as in Table 19; save that the profit figure for 1909 is that of the calendar year.

* Sources as in Table 19.

ginning its career, had refused to join the Association of Licensed Automobile Manufacturers, and suit for infringement of the Selden patent had been started on October 21, 1903. After six years of strenuous litigation, as we have noted, the Selden patent was sustained in every particular by the United States Circuit Court of the Southern District of New York.[1] The Association of Licensed Automobile Manufacturers immediately instituted a campaign of newspaper advertising, warning the public against the purchase of Ford cars, and asserting that every owner of a Ford car was liable for damages. The Ford Motor Company countered this attack by advertisements announcing that it had deposited a bond with a New York trust company to protect its customers; and it appealed from the decision to the Circuit Court of Appeals. A reversal of the decision appeared to be unlikely, for the opinion of Judge Hough had been rendered only after one of the lengthiest patent suits in American history.

The Ford Motor Company, during the year previous to Judge Hough's decision, had entered into preliminary negotiations with Messrs. William C. Durant, of the Buick Motor Car Company, Benjamin Briscoe, of the Maxwell-Briscoe Motor Company, and Ransom E. Olds, of the Reo Motor Car Company, for the formation of a combination of motor-car manufacturers; but had dropped the negotiations

[1] 172 Federal 923.

when its demand for a cash payment of $3,000,000 had been refused.[1] Shortly after the Company's reverse in the patent litigation, however, Durant, on behalf of the newly organized General Motors Company, as we have observed,[2] succeeded in obtaining an option, dated October 25, 1909, to purchase all of the capital stock of the Ford Motor Company for $8,000,000, of which $2,000,000 was to be paid in cash, and the remainder, in one- and two-year notes. Durant allowed the option to lapse because he could not obtain the funds for the initial payment. The possible subsequent history of the Ford enterprise under the auspices of the General Motors Company is a tempting subject for speculation. The decision of Judge Hough, however, was reversed by the Circuit Court of Appeals in January, 1911;[3] the chief obstacle in the path of the meteoric rise of the Company was thus eliminated.

The Selden patent suit strained the resources of the Ford Motor Company at times,[4] and hence may have retarded its growth. Nevertheless, the records disclose no sign of this: while the litigation was at its height, the Company was emerging as the leading producer of automobiles in the world. Even an adverse decision might not have had serious consequences for the Company. In the opinion of James Couzens, then and for many years vice-president of the Company, a license under the patent would have been easily obtainable;[5] the royalty rate had never exceeded 1.5 per cent of the retail value of the licensed automobiles, and, at the time of the decision, the rate was only four-fifths of one per cent; the bulk of the royalties, moreover, were pay-

[1] See Chapter II, Section 8, above.

[2] See Chapter II, Section 9, above.

[3] 184 Federal 893.

[4] See Henry Ford, *My Life and Work*, p. 60 ff.

[5] 'I cannot conceive that a declaration of the validity of the patent would have had any great effect upon the industry, although at the time it, of course, seemed of very great importance. I mean by this, if the patent had been declared valid, I doubt if there would have been any difficulty in getting a license.' (From a letter to the writer under date of February 9, 1924.)

able to the Association of Licensed Automobile Manufacturers for trade association purposes, a maximum of $150,000 annually being all that was payable to the patent-holders.

6. Sales and Operating Policies

The great spurts in the business of the Ford Motor Company during the five years beginning with 1909 were stimulated by successive reductions in the price of the product, by a more aggressive sales policy, and by improvements in manufacturing organization.

The initial price of the 'Model T' in 1909 was $950. In 1910, the price was reduced to $780, and sales jumped from 19,051 to 34,979 cars. In 1911, the price was reduced to $690, and sales nearly doubled, reaching 76,150 vehicles. In the following year, with the price cut to $600, sales totaled 181,951; and in 1913, with the price reduced to $550, sales increased to 264,972 cars.

Soon after its organization, the Company had established branch retail stores in the larger cities. These were now eliminated, and the number of independent sales dealers was greatly increased. By March 1, 1913, the Company had one or more sales agents in every city or town of 1000 population or more in the United States.[1] Branch sales offices were established by the Company in various parts of the country to supervise and to stimulate the efforts of the dealers. Among the general instructions issued to the latter, was the following:[2]

> A dealer or salesman ought to have the name of every possible automobile buyer in his territory, including all those who have never given the matter a thought. He should then personally solicit by visitation if possible — by correspondence at the least — every man on that list and then making necessary memoranda, know the automobile situation as related to every man so solicited. If your territory is too large to permit this, you have too much territory.

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[1] Testimony of Norval A. Hawkins, sales manager of the Company in 1913, before the United States Board of Tax Appeals, February 1, 1927.

[2] From Henry Ford, *My Life and Work*, p. 60.

Every dealer was required to maintain a stock of Ford parts sufficient to make prompt replacements, and to keep every Ford car in his territory in active service; to maintain a thoroughly equipped repair shop operated by skilled mechanics; a comprehensive bookkeeping system; a 'follow-up' sales system; and suitable signs, quarters, and publicity.[1] When the seasonal character of the demand for automobiles began to create problems of production, warehousing, and credit, for the Company, a campaign of 'education,' by newspaper advertisement and letters, was prosecuted to convert both dealers and consumers to the policy of distributing purchases throughout the year.[2] Dealers were required to submit orders by months for a year in advance, the unfilled orders being subject to cancellation upon a month's written notice; and the strong influence of the Company was exerted upon the dealers to anticipate their spring and summer requirements by stocking up during the winter months.

Improvements in manufacturing organization, as well as price reductions and an improved selling organization, contributed to the great growth of the Company's business from 1909 to 1914. In 1906, the original quarters of the Company had been deserted for a three-story factory building, the construction of which had been financed by funds taken from the Company's working capital. Here, the Company had begun to manufacture a few of the parts of its products, and to do more of the assembling. In 1909, the Company purchased sixty acres of land in Highland Park, a suburb of Detroit, and constructed one of the largest manufacturing plants in the world. 'To pay for the new lands and buildings, I slightly raised prices,' wrote Mr. Henry Ford in his autobiography.[3]

In the new plant, the Company introduced many and radical improvements in factory and shop practice, innova-

[1] From Henry Ford, *My Life and Work*, p. 60.
[2] *Ibid.*, p. 166 ff. [3] *Ibid.*, p. 73.

tions which have since been widely copied.[1] In contrast with the prevailing practice in the automobile industry, the Company concentrated its already large and growing resources upon the manufacture of a single model (motor and chassis, on which were mounted several types of bodies). And, while other producers continued to make large financial outlays for annual changes in their numerous models, the Ford Motor Company standardized its product (making even small changes in design only infrequently), and employed its resources for improvements in production technique.

The large volume of its output and its standardized product permitted the employment of the most specialized tools, machines, and processes. This specialization it extended to its suppliers, most of whom came to make but a single component of the product. Whole independent organizations were moved to Detroit from other cities to take care of Ford orders. The Ford Motor Company purchased materials for its components-makers, reorganized their manufacturing processes, supervised their larger policies, and, in some cases, aided them in financing production.[2] The Company became so dependent upon the production of its specialized suppliers that its own operations were frequently within thirty minutes of suspension because of tardy deliveries of parts or materials.[3]

In its new plant, the Company gradually took over the direct production of more of the components. This limited integration proceeded slowly, however, for the Company needed the resources of its suppliers to sustain the volume of its output; and, in contrast with its more recent policy, the Company was not then averse to purchasing virtually all of its materials and parts from independent producers.[4] Never-

[1] For a full and technical discussion of the radical innovations in factory organization and operation initiated by the Ford Motor Company, see Arnold and Faurote, *Ford Methods and the Ford Shops*.

[2] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

[3] *Ibid.* [4] Ford, *My Life and Work*, p. 52 ff.

theless, it found the business of parts-manufacture extremely profitable. 'We were very careful to make the parts ourselves which wore out the quickest. . . . In the case of frames, we did not begin to make them ourselves for some years because they lasted so long,' said Mr. Norval A. Hawkins, formerly sales manager of the Company.[1] Because parts-manufacture was so lucrative, and because supervision of independent concerns under the purchase system proved difficult, the Company gradually extended the range of its own manufacturing operations.

And, whenever the Company took over the manufacture of any parts, 'it always made them cheaper than the former makers.'[2] The Company had special machines and tools designed and constructed 'to do just that one job, whereas the outside manufacturer had to consider other products with the same machine.'[3] Thus, a bolt previously purchased from the Western Automatic Screw Machine Company at $50 a thousand was produced directly by the Ford Motor Company at a cost of $8.70 a thousand, according to the Company's books, during the first year of its manufacture of this bolt; a saving of $582,635 for the year resulted.[4] Analogous savings were effected by the substitution of direct manufacture for purchase of transmissions, springs, push-rods, and other parts.[5]

It is pertinent at this point to note briefly some of the operating policies introduced by the Company between 1909 and 1914 that have been recognized as contributing greatly to its manufacturing efficiency.[6]

[1] Testimony of Norval A. Hawkins, before the United States Board of Tax Appeals, in Washington, February 1, 1927.

[2] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

[3] *Ibid.* [4] *Ibid.*

[5] *Ibid.* The direct manufacture of push-rods, previously purchased from the Michigan Bolt & Nut Works, effected a saving of $153,258 the first year that the Company undertook such manufacture; transmissions formerly purchased from Dodge Brothers were made directly at a saving of from $9 to $10 a car; the direct manufacture of front springs effected a saving of $86,171 the first year; etc.

[6] Cf. Arnold and Faurote, *The Ford Methods and the Ford Shops.*

1. The minute subdivision of labor tasks and production processes, making possible the wide use of the machine-tool and of unskilled labor. Tasks previously requiring skilled workmen were broken up into many small operations, skill in any one of which could be acquired in a few hours; and tools and machines were substituted for virtually all hand operations. The importance of this practice is appreciated when it is recognized that the existence of a large class of skilled machinists and wood-workers in various localities early influenced the location of automobile factories; yet the present scale of the Ford operations would be impossible did it depend upon skilled labor.[1] The specialized tool and machine; the subdivision and specialization of labor tasks, making possible the efficient use of all grades of labor; even the stimulus to invention that results from specialization [2] — these applications of long-known theoretical advantages of large-scale production and specialization contributed much to the manufacturing efficiency of the Ford Motor Company.

2. The economy of factory space and of working time by the use of internal factory trains, monorails, moving belts, and the 'endless chain production line.' The use of belts carrying materials above the floor released floor space. The use of trains and monorails throughout the factory for carrying materials permitted the placing of machines with reference solely to their use in the progressive assembling of the product, and eliminated walking and the carrying of materials by the workers. The 'endless chain production line' eliminated further carrying of materials because it permitted the product in process to be carried along from worker to worker and from machine to machine by power-

[1] 'Sufficiently skilled men to the number needed could not have been trained in a hundred years. A million men working by hand could not even approximate our present daily output. No one could manage a million men.' (Henry Ford, *My Life and Work*, p. 78.)

[2] Hundreds of suggestions emanating from the workmen, most of whom are foreign-born, as to changes in machines and as to new devices, have been incorporated by the Company. (*Ibid.*, p. 100 ff.)

driven chains. The Ford Conveyor System — 'which is responsible for a great part in the success of Ford quantity production'[1] — has now been adopted by nearly all large automobile factories.

3. The shifting of the final assembling of the product from the main manufacturing unit in Highland Park to a large number of branch assembling plants distributed throughout the United States and in foreign countries. This practice greatly facilitated the physical distribution of the enormous volume of product; economized factory space in the chief producing center; and effected tremendous savings in freight costs.

During this period of rapid growth, the Ford Motor Company was virtually free from effective competition in the field of low-priced automobiles. Potential competitors did appear; thus, the Olds Motor Works produced an automobile selling at $650 as early as 1900 and for three years thereafter; and, in 1909, the Hupp Motor Car Corporation produced a car selling at $750 as compared with the Ford at $950; but in each of these as in other cases the potential competitor deserted the field for that of higher-priced cars, or went out of business. The widespread conception of the automobile as a luxury, and the large profits per car in the higher-priced field served to divert the Company's potential competitors. In addition, the restraint imposed by the Association of Licensed Automobile Manufacturers, operating under the Selden patent (which Ford, alone, among the important producers, refused to recognize), undoubtedly retarded the appearance of competitors. Before the influence of these factors had greatly diminished, the Ford Motor Company had become firmly established, and had already begun its policy of distancing potential competitors by progressive reductions in the price of its product and by high technical efficiency.

The expansion of the Company during this period ap-

[1] *Facts from Ford*, 4th ed., p. 12, Ford Motor Company.

peared to be conditioned only by the physical limits of production. In addition to the favorable circumstances noted in the foregoing, the Company encountered none of the usual obstacles in matters of finance. The large profits of the enterprise easily yielded the increasing sums required for fixed capital; and, because of the prevailing practices in the automobile industry, whereby the Company received payment in cash for its product immediately upon delivery, while its suppliers of parts and materials extended the customary commercial credit of thirty or sixty days, its working capital requirements were remarkably small.

On September 30, 1914, the Ford Motor Company possessed aggregate assets of $59,801,836, of which $27,092,713 consisted of cash, and was subject to total liabilities of only $5,926,610.[1] During the year ended on that date it had paid out $11,000,000 in special dividends, in addition to the regular quarterly dividends totaling $1,200,000;[2] it had inaugurated on January 1, of the year, an employees' 'profit-sharing' plan providing for a minimum wage of $5 a day for adult employees, and entailing an increased annual expenditure of $10,000,000;[3] and in July of that year it had announced a 'buyers' profit-sharing agreement' whereby approximately $15,000,000 was to be returned to purchasers of its cars at the end of the ensuing year if the Company's sales attained a stipulated volume.[4]

7. The Dodge Suit

During the same year the Company began plans for a vast program of expansion, involving the duplication of its Highland Park plant on a large site in River Rouge, Michigan, and the construction of blast furnaces, foundries, glass factories, and other plants, with a view toward the integra-

[1] Annual report of the Ford Motor Company, 1914, to the Michigan Secretary of State.

[2] Dodge v. Ford Motor Company, 204 Mich., 464.

[3] *Facts from Ford*, p. 53, Ford Motor Company.

[4] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

tion under its ownership of many of the industries necessary to its final product. In order to accumulate the funds required for this program, the Company postponed a reduction in the prices of its products during the year 1915–16; and, in consequence, its profits that year totaled $59,994,-918.[1] On August 1, 1916, the Company announced a reduction of $80 in the price of its touring car — from $440 to $360 — and proportionate reductions in the prices of its other models. The new prices represented a decrease of $40,000,000 in anticipated receipts if the volume of production and sales remained the same as in the year preceding.[2] The expectation was, of course, that the volume of output and sales would be greatly increased as a result of the lower prices.

This sharp reduction in prices and the large expansion projects of the Company, coupled with an announcement by Mr. Henry Ford on August 31, 1916, that the bulk of the profits of the Ford Motor Company would thenceforth be reinvested in the business of the Company,[3] led to the filing of a suit by John F. Dodge and Horace E. Dodge, owners of ten per cent of its capital stock, to enjoin the Company from all further expansion, and to compel the distribution of accumulated earnings held in cash and all future earnings.[4]

The Dodge brothers had resigned from directorships in the Ford Motor Company and had ceased to manufacture parts for the Company in 1914, when they had organized a separate enterprise of their own for the manufacture of automobiles. This company was now operating successfully as Dodge Brothers, Inc.; and the demand of the Dodges for a distribution of the profits of the Ford Motor Company may be supposed to have been motivated by the desire to expand their own business and to restrict the expansion of a competitor.

The bill of complaint, filed on November 2, 1916, and

[1] *Ibid.* [2] *Ibid.* [3] *Detroit News*, August 31, 1916.

[4] Bill of Complaint, Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

amended on April 26, 1917, charged the Ford Motor Company with violation of the Michigan statute limiting the capital stock of a corporation to $25,000,000 (the legislature increased this limit to $50,000,000 during the hearing of the suit); with *ultra-vires* expansion projects, such as those for blast furnaces and foundries; with reckless price reductions and reckless plans for expansion; with domination of the Company by Henry Ford; with the sacrifice of the stockholders' interests for philanthropic purposes; and with an intent to monopolize the automobile business.

The answer of the Ford Motor Company and of Henry Ford, James Couzens, and others who were made co-defendants, admitted the allegations of facts with respect to the Company's profits and expansion projects, but denied all the equities in the bill of complaint. The answer cited the record of special dividends; referred to the unanimous vote of the stockholders on various decisions with respect to the Company's expansion; declared that the extensions were made necessary by the inadequacy of the existing equipment to satisfy the demand for the Company's products; asserted that the reductions in the prices of its models were only in keeping with its traditional price policies; and declared that the maintenance of large cash balances was essential to the safety and well-being of the Company.

The plaintiffs, on December 9, 1916, procured an injunction from the Wayne County Circuit Court (Michigan), enjoining the Ford Motor Company from further expenditures on its expansion program. On appeal to the Supreme Court of Michigan the Ford Motor Company was granted an alternative order of mandamus against the Circuit Court judges, ordering the dissolution of the injunction and the substitution of a bond for $10,000,000 to protect the plaintiffs against loss.

Hearing of the suit began before Judge George S. Hosmer of the Circuit Court on May 21, 1917. The chief legal issues argued concerned the power of the Company to engage in the smelting of ore and other alleged *ultra-vires* activities,

and the question whether the Michigan statutory limitation on the capital stock of a corporation was synonymous with a limitation on the total value of property to be owned by a corporation.

The judge's decision, delivered on December 5, 1917, was based exclusively on the second issue, and held that the statutory limitation on capital stock applied equally to property. The continued construction of the Ford blast furnaces was therefore enjoined as 'an excessive investment beyond the legal limit,' and, since the Ford Motor Company's investments already exceeded the legal limit, the Court held that the excess should be distributed as requested by the plaintiffs. The Court ordered that one-half of the earnings of the fiscal year ended July 31, 1916 — $29,500,000 — less all dividends declared during the pendency of the suit, leaving $19,275,385.96, should be distributed as a special dividend.

An appeal from this decision to the Michigan Supreme Court was filed on April 9, 1918; and additional briefs and testimony were presented. The Supreme Court, in a decision delivered on February 9, 1919,[1] held that the statutory limitation on the capital stock of a corporation could not be construed as limiting subsequent additions to the property of a corporation through reinvestment of profits; and hence the decree of the lower court restraining the Ford Motor Company from proceeding with its expansion program was reversed. The Court held that the expansion projects of the Ford Motor Company were not *ultra vires;* and to the charge that the Company was intent upon a monopoly of the automobile manufacturing business, the Court replied:

> Where no monopoly will accrue to a corporation by reinvesting its profits in expanding its plant other than such as accrues to a concern which makes what the public demands, there is no violation of any anti-trust laws in such policy of expansion.

Sustaining the contention of the plaintiffs, however, that profits were being retained by the Company for philan-

[1] Dodge v. Ford Motor Company, 204 Mich., 402 ff.

thropic uses at the expense of the stockholders, the Supreme Court upheld that part of the lower court's decision which directed the payment of a special dividend. Two newspaper pronouncements of Mr. Henry Ford, the authenticity of which was admitted, and which provided the basis for the Court's decision on this point, are here reproduced:

My ambition is to employ still more men, to spread the benefits of this industrial system to the greatest possible number, to help them build up their lives and their homes. To do this we are putting the greatest share of our profits back into the business. . . . With regard to dividends, the company paid 60 per cent on its capitalization of $2,000,000, or $1,200,000, leaving $68,500,000 to reinvest for the growth of the company.[1]

I have been fighting to hold down our income right along. . . . We made an enormous profit last year because we needed the money for expansion and the benefit will eventually go to the buyer and the laborer. We could easily have maintained our prices for this year and cleaned up from 60 to 75 millions; but I don't think it would have been right to do so, so we cut our prices and are now clearing $1,500,000 to $2,500,000 a month, which is all any firm ought to make — maybe more — unless, as I said, the money is to be used for expansion.[2]

On this point, the Supreme Court declared:

It is not within the lawful powers of a board of directors to shape and conduct the affairs of a corporation for the merely incidental benefit of the shareholders and for the primary purpose of benefiting others. . . . Where a corporation would have a surplus of approximately $30,000,000 after paying for approved expansion and improvement of its plant, and could reasonably expect a profit of $60,000,000 a year, refusal by the board of directors to distribute extra dividends was arbitrary, and the decree of the court below determining that $19,275,385.96 (one-half of the cash surplus, less special dividends declared after the filing of the bill) should be distributed as an extra dividend is affirmed.

The growth of the Ford Motor Company during the five years between September 30, 1913, and July 31, 1918, is reflected in the summary of the results of its operation presented in Table 21.

The fixed capital investment of the Company was greatly

[1] *Detroit News*, August 31, 1916. [2] *Ibid.*, March 14, 1917.

increased during this period. On September 30, 1913, the value of its real estate, plant and equipment, *and* inventories aggregated $19,853,339; on July 31, 1918, these assets,

TABLE 21. OUTPUT, RECEIPTS, PROFITS, AND NET WORTH OF FORD MOTOR COMPANY, 1914–18 *

YEAR [a]	OUTPUT	RECEIPTS	PROFITS	NET WORTH
1914.....	264,972	$119,489,317	$24,923,449	$53,875,226
1915.....	283,161	121,200,871	23,426,662	61,135,771
1916.....	534,108	206,867,327	57,056,429	114,060,908
1917.....	785,433	274,575,052	26,715,944	133,604,907
1918.....	708,355	308,719,034	30,341,057	156,268,721

[a] Fiscal years ended September 30 for 1914, July 31, for 1915 (10 months), and July 31 for each of the other years.
* Sources as in Table 19.

without inventories, were valued at $66,453,345.[1] On the latter date, the Company possessed $91,471,851 in cash and sight drafts.

During 1917 and 1918, a large part of the facilities of the Ford plants had been employed for the manufacture of war materials; in consequence, commercial production of automobiles and trucks had been somewhat curtailed. The wartime price movements had likewise interrupted the Company's series of price reductions. The price of its touring car in 1913 was $550; in 1914, $490; in 1915, $440; in 1916, $360; in 1917, $450; and in 1918, $525.

8. REORGANIZATION OF THE FORD MOTOR COMPANY

The decision of the Michigan Supreme Court in the Dodge case was widely construed as greatly strengthening the legal position of minority stockholders; and it caused Henry Ford to consider relinquishing active participation in the administration of the Ford Motor Company and to plan a new automobile enterprise in which he should possess entire control. Even before the suit had been finally adjudicated, Ford had organized a separate corporation, owned entirely

[1] Annual reports to the Michigan Secretary of State.

by himself, his wife, and his son, for the manufacture of an automotive farm tractor which he had designed.[1] On December 31, 1918, he resigned from the presidency of the Ford Motor Company, declaring that he desired to devote his time 'to other organizations,' and that he wished to be 'relieved of all responsibilities and obligations arising from holding a salaried office in the Company.'[2] A short time later, wide currency was given to a newspaper interview with Henry Ford in which he was reported to have announced his intention to build a new and lower-priced automobile in a factory of his own.[3] Instead of organizing this competing enterprise, however, Ford set out to acquire the minority stockholdings in the Ford Motor Company; and, as they allege, the minority stockholders were coerced into selling their stock to the Fords at unduly low prices because of the threatened formation of a competing Ford company.[4]

For the purpose of financing the purchase of the minority stock, the Fords organized two holding companies, Henry Ford & Son, Inc. (New York), and the Eastern Holding Company (Delaware). To the first of these, they transferred their stock in the Ford Motor Company (Michigan), save for directors' qualifying shares. The Delaware corporation, which had been incorporated on July 9, 1919, to deal

[1] Henry Ford & Son, which was incorporated in Michigan in August, 1917, with a capitalization of $1,000,000. By resolution of February 2, 1916, the board of directors of the Ford Motor Company had relinquished all claims to the Ford tractor, and had released the right to the name 'Ford' for the latter, with the proviso that the name 'Henry' precede 'Ford' in the name of the tractor enterprise, and, further, that the Ford Motor Company be free to enter upon tractor manufacture upon payment of $46,810. (Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.) The tractor enterprise was subsequently taken over by the Ford Motor Company.

[2] The letter of resignation is quoted in full in the *Detroit News* of January 15, 1927.

[3] See stipulations of appellants before the United States Board of Tax Appeals, as reported in the *Detroit News* of January 15, 1927, and at various times during the ten weeks following.

[4] *Ibid.*

in investments, then radically altered its charter six days later: its name was changed to the Ford Motor Company, its authorized capital stock increased from $100,000 to $100,000,000, and its chartered powers made to include the manufacture of automobiles, aircraft, motors, railroad cars, locomotives, and allied products. On July 16, 1919, this Company concluded arrangements with a syndicate composed of Bond & Goodwin, the Chase National Bank, and the Old Colony Trust Company, for a $75,000,000 one-year credit, the proceeds of which were used for the purchase of the minority stock of the Michigan company. The obligation of the Delaware corporation was evidenced by ninety-day notes with the privilege of three renewals, discounted at the prevailing market rate for commercial borrowings.[1] The Ford Motor Company (Delaware) used only $60,000,000 of the credit, and repaid the entire loan in serial installments within the one-year period.[2] The record of stockholders in the annual report of the Ford Motor Company of Michigan for July 31, 1919, reflects the stock-purchase transactions:

Henry Ford & Son, Inc., New York	11,697 shares
Ford Motor Company, Delaware	6,100
James Couzens	2,180
Mrs. A. P. Hauss	20
Henry Ford	1
Edsel Ford	1
F. L. Klingensmith	1

The remaining minority stock of the Ford Motor Company of Michigan was purchased from James Couzens and his sister, Mrs. A. P. Hauss, in September, 1919.

The prices at which these minority interests were sold

[1] The first notes were discounted at 5.5 per cent; $50,000,000 was renewed on October 16, 1919, at a discount of 5.25 per cent; $42,500,000 was renewed at 6 per cent on January 16, 1920; $35,000,000 was renewed at 6 per cent on April 16, 1920; and this balance was retired on July 16, 1920. (Cf. announcement of President Edsel Ford, quoted in *Moody's Industrials*, 1919, p. 2954, and in the *Commercial and Financial Chronicle*, vol. 109, p. 275.)

[2] *Ibid.*

present a striking contrast with those that obtained a few years earlier. In 1906, Henry Ford had brought his holdings up to fifty-one per cent of the Company's stock by purchasing for $175,000 the 25.5 per cent interest held by his original supporter, Alexander Y. Malcomson, Ford paying for the stock partly in promissory notes and partly in borrowed funds.[1] In 1907, four other stockholders sold out to Ford and Couzens at $500 a share.[2] In 1908, a stock dividend multiplied each share by twenty. In 1919, Henry and Edsel Ford purchased the minority holdings of these shares at $12,500 and $13,444.43 a share, the latter price going only to Couzens and his sister.[3] The Dodge brothers thus received $25,000,000 in cash for their original subscription of $10,000 par value of stock, after having drawn dividends totaling $9,871,500 (cash); the Gray Estate received $26,250,000 for its holdings, after having received cash dividends aggregating $10,355,075; John W. Anderson and Horace H. Rackham each received $12,500,000 for their original investments of $5000, after each had received $4,935,750 in dividends; and Senator Couzens obtained $29,308,858 and his sister, $260,000, for a joint investment of $2000, augmented by later stock purchases made possible by their dividends.[4]

When the Ford Motor Company of Delaware had completed its purchases of the minority interests in the Michigan corporation, it proceeded to take over the assets and business of the latter and of those of Henry Ford & Son, Inc. (New York), and Henry Ford & Son, Inc. (Michigan). The three latter corporations were then dissolved. In its annual report to the Michigan Secretary of State on December 31, 1920, the Ford Motor Company of Delaware, now the operating company, gave the list of stockholders as follows:

[1] Benson, *op. cit.*, p. 105. [2] *Ibid.*, pp. 114, 126.

[3] See stipulations of appellants before United States Board of Tax Appeals, January, 1927.

[4] Benson, *op. cit.*, p. 121 ff.

Henry Ford	95,321 shares
Edsel B. Ford	71,911
Clara J. Ford	5,413
	172,645 shares

Total authorized: 1,000,000 shares, par value $100 a share

In the consolidation of the Ford interests into a family corporation, no attempt was made to purchase the minority stock ownership in the Ford Motor Company of Canada, Ltd., or in other of the associated Ford companies incorporated in foreign countries. The American company controls these by means of working agreements and by means of stock ownership held in the names of the American company's stockholders; and it aids in financing them by deferring claims for parts and materials supplied them.[1] The Canadian company, the largest of the associated Ford companies, had a net worth on July 31, 1926, of $35,552,579, all of which, except for the original investment of $125,000 (half of which was contributed by the American company in the form of franchise rights) had been built up by the reinvestment of profits.[2] The officers of the Canadian company include (1927) Henry Ford, president, and Edsel B. Ford, vice-president. The stock of the Company is listed on the Detroit Stock Exchange and occasionally enjoys an active market.

The elimination of the minority stockholders in the Ford

[1] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

[2] Annual reports of Ford Motor Company of Canada, Ltd. The Canadian company follows the same operating methods, with respect to production, branch assembling, and sales as the American company. The original capitalization was increased from $125,000 to $1,000,000 in 1911, and to $10,000,000 authorized capital stock in 1915, of which $7,000,000 has been issued — all but the original $125,000, in the form of stock dividends. Cash dividends have been paid as follows: 1905, 6 per cent; 1908, 10 per cent; 1909, 25 per cent; 1910, 100 per cent; 1911, 100 per cent (and 500 per cent stock); 1912, 20 per cent (and 33⅓ per cent stock); 1914, 10 per cent; 1915, 110 per cent; 1916, 600 per cent stock; 1917, 5 per cent; 1918, 5 per cent; 1919, 35 per cent; 1920, 15 per cent; 1921, 30 per cent; 1922, 30 per cent; 1923, 10 per cent; 1924, 10 per cent; 1925, 20 per cent; 1926, 10 per cent.

organization was followed by a vigorous renewal of the policy of expansion. The blast furnaces, foundries, paper and glass factories, and other plants constructed on the River Rouge site were rapidly put into full operation, and the Company began to acquire holdings of timber and ore lands, coal mines, water-power sites, and other primary sources of power and materials. Its investment in real estate, plant, machinery and equipment, in 1918 was $66,453,345; in 1919 (July 31), $79,188,320; and on April 30, 1920, $127,210,862.[1] During the calendar year of 1919, the Company's net profits total $69,924,411;[2] and during the calendar year 1920, the production of cars and trucks (a light commercial truck had been added to the Company's line of products early in 1918) broke all previous records, totaling 1,074,336.[3] An output of 1,250,000 cars and trucks was planned for the year 1921.

9. The Crisis of 1920–21

But it was during this year that the Ford Motor Company was faced with the greatest, and, so far as the records disclose, the only, financial crisis in its history.

The post-war boom in general business had shown signs of imminent collapse early in 1920, and, as summer came, the automobile business experienced a marked slackening in sales. The business of the Ford Motor Company slumped with that of others. On September 21, 1920, President Edsel B. Ford announced a reduction in the prices of the Ford products, that of the touring car being cut from $575 to $440, and other models being similarly reduced. The new prices meant a loss on the immediate orders of the Company, according to the announcement, because of the large volume of inventories purchased at the high prices previously prevailing; but the reductions were made to stimu-

[1] Reports of Ford Motor Company; balance sheets reproduced in *Moody's Industrials.*

[2] Benson, *The New Henry Ford*, p. 144.

[3] *Facts from Ford*, p. 29, issued by the Ford Motor Company.

late sales. A short spurt in the business of the Company followed the price cuts, but sales soon fell off again.

In view of the period of liquidation in general business which was then setting in throughout the country, the vulnerable financial position of the Ford Motor Company at this time may be seen from a survey of its balance sheet of December 31, 1920:[1]

Assets		Liabilities	
Real estate	$50,861,001	Capital stock	$17,264,500
Other tangible goods	124,350,295	Liability on unsecured indebtedness	143,025,301
Cash	13,557,245	Surplus	124,265,141
Good-will	21,262,833		
Credits	54,438,634		
U.S. Bonds, Stock in subsidiaries, Prepaid expenses, Investments in other companies	20,084,934		
	$284,554,942		$284,554,942

In spite of the new insertion of a good-will item of $21,262,833 in the list of assets, the net worth of the Company as exhibited by the balance sheet above showed a decrease of more than $60,000,000 as compared with the net worth on July 31, 1919. Liability on unsecured indebtedness had increased from $96,271,959 to $143,025,301; credits had decreased from $96,182,704 to $54,438,634; cash had decreased from $59,829,279 to $13,557,245; and tangible goods other than real estate had increased from $88,506,436 to $124,350,295.

In this situation, the Company took radical steps, open only to a concern of its size, to force down the prices of raw materials and of manufactured parts, and thus to permit it to stimulate its sales by further price reductions. Cognizant of the effect of its action on many firms of which it was the sole or chief customer, the Company suddenly ceased purchases of raw materials and parts; and, while maintaining its production at highest pitch, it made preparations for a sudden shut-down of the great Highland Park plant so soon as the accumulated inventories of materials had been

[1] Annual report to the Michigan Secretary of State.

turned into finished products. In justifying the action of his Company, Henry Ford is quoted as having said:[1]

> I knew something drastic had to be done, and was determined to do it. When the war ended, the excuse for war prices ended, but those who sold us raw materials did not seem to know it.

Late in December, 1920, after its inventories had been made up into finished parts and shipped to its thirty-five branch assembling units throughout the country, the Company suspended operations at its Highland Park plant — first, for two weeks, and then, 'indefinitely.'

During January, all the assembled cars were shipped from the Company's branches to the more than 10,000 Ford dealers, draft bills of lading attached. About 125,000 cars were thus marketed, and much of the burden of emergency financing was thus shifted to the dealers, who were requested to take up the cars under their annual quota-arrangement with the Company. At the same time, foreign agents were called upon to remit $3,000,000 on outstanding accounts; $3,700,000 was realized from the sale of by-products of the Ford operations; and $7,900,000 from the sale of Liberty bonds.[2] After six weeks of shutdown, the Highland Park plant was reopened for operation.

Striking economies were now effected in the productive operations. The office force was cut in half; all order blanks and statistical forms that did not aid directly in production were abolished; sixty per cent of the telephone extensions were removed; the number of foremen was cut to one-fourth of the previous number (one foreman being now employed for every twenty men instead of one for every five men); the number of employees per car per day was reduced from fifteen to nine.[3] 'We cut the overhead charge from $146 to $93 a car, and when you realize what this means on more

[1] Benson, *The New Henry Ford*, p. 184.

[2] Henry Ford, *My Life and Work*, p. 173 ff.; see also, Dow, Jones & Co., quoted in the *Literary Digest*, September 30, 1922; Benson, *op. cit.*, p. 187 ff.

[3] *Ibid.*

than four thousand cars a day you will have an idea how . . . it is possible to make an impossible price,' wrote Mr. Henry Ford, in discussing these changes, in his autobiography.[1] Continuing, he declared:

> Most important of all, we found out how to use less money in our business by speeding up the turnover. And in increasing the turnover rate, one of the most important factors was the Detroit, Toledo, & Ironton Railroad — which we purchased. . . . We discovered . . . that freight service could be improved sufficiently to reduce the cycle of manufacture from twenty-two to fourteen days. That is, raw material could be bought, manufactured and the finished product put into the hands of the distributor in (roughly) 33 per cent less time than before. We had been carrying an inventory of around $60,000,000 to insure uninterrupted production. Cutting down the time one-third released $20,000,000. . . . Counting the finished inventory, we saved approximately $8,000,000 more — that is, we were able to release $28,000,000 in capital. . . . On January 1 (1921), we had $20,000,000. On April 1, we had $87,300,000, or $27,300,000 more than we needed to wipe out all our indebtedness.[2]

The success of the Ford Motor Company in extricating itself from financial embarrassment without the customary expedients of long- or short-term borrowing provoked widespread comment. While operating economies played a large rôle in this success, an equally important one was that involved in the shifting of the burden of credit to the Company's sales dealers and suppliers. When other firms were facing acute embarrassment by reason of the sudden cancel-

[1] Page 173.

[2] Control of the Detroit, Toledo & Ironton Railroad was acquired by Henry Ford on July 9, 1920, by the purchase of approximately 97 per cent of the outstanding securities of the road, according to an announcement by Fosburgh, Pratt & Osborn, of New York, who negotiated the sale. (Cf. *Commercial and Financial Chronicle*, vol. 111, p. 294.) The total price was approximately $5,000,000 and was paid at the rate of $600 per $1000 bond; $5 per share of preferred stock; and $1 per share of common stock. The road was acquired 'because its right of way interfered with some of our improvements on the River Rouge. We did not buy it as an investment, or as an adjunct to our industries, or because of its strategic position. . . . We bought the railway because it interfered with our plans. Then we had to do something with it.' (Henry Ford, *My Life and Work*, p. 224.)

lation of orders by their customers, the Ford Motor Company prevailed upon its dealers to accept shipments (sight drafts attached) in advance of orders; and, at the same time, persuaded its suppliers of parts and materials to extend credit.[1] The power of the Company to employ such expedients in a period of acute distress in general business can be explained only by the extraordinary profitableness to its dealers and suppliers of their relations with the Ford enterprise.

10. Recovery and Integration

The Ford Motor Company emerged from its embarrassment with a greatly improved manufacturing organization and in a liquid financial condition. In the six months between December 31, 1920, and June 30, 1921, its cash and bank balances rose from $13,557,245 to $54,844,538; its current liabilities (including reserves and accruals) declined from $143,025,301 to $89,417,027.[2] The fruits of its new manufacturing economies were strikingly displayed in the years immediately following. The price of the Ford touring car was reduced from $440 to $355 in 1921; the Company's net profits in this year of depression totaled $75,890,836.[3] In 1922, the Company's net worth increased by more than $133,000,000;[4] and in 1923, with the price of its touring car reduced to $295, the Company's output and sales exceeded 2,000,000 vehicles — the largest volume it has yet achieved.

[1] Dow, Jones & Co., quoted in the *Literary Digest* of September 30, 1922, summarize the expedients employed by the Ford Motor Company during the crisis and depression of 1920–21 in substantial agreement with the account given in Henry Ford's autobiography.

[2] Annual reports to the Michigan Secretary of State.

[3] Benson, *op. cit.*, p. 144. The contrast between the large profits of the Ford Motor Company and the large deficits of other important enterprises in 1921 is somewhat mitigated, however, by the fact that the Ford Company readjusted its valuation accounts in conformity with the changed business situation in 1920, whereas most others waited until 1921.

[4] See annual reports to Massachusetts Commissioner of Corporations and Michigan Secretary of State.

The operations of the Company for the years 1919–23, inclusive, in so far as they are reflected by figures of output, receipts, profits, and net worth, are summarized below.

TABLE 22. OUTPUT, RECEIPTS, PROFITS, AND NET WORTH OF FORD MOTOR COMPANY, 1919–23, INCLUSIVE

YEAR	OUTPUT [a]	RECEIPTS [b]	PROFITS [c]	NET WORTH [d]
1919	537,452 401,982	$305,637,115	$69,924,411	$202,135,296 (July 31)
1920	1,074,336	429,866,663 483,896,483	53,448,480	141,529,641 (Dec. 31)
1921	1,013,958	546,049,450	75,890,836	173,951,173 (June 30)
1922	1,351,333	608,341,082	133,248,623	307,199,796 (June 30) 359,962,693 (Dec. 31)
1923	2,090,959	858,863,758	99,342,888	459,305,581 (Dec. 31)

[a] From *The Ford Industries*, p. 11, published by the Ford Motor Company. Upper figure for 1919 represents output for the 12 months ended July 31, 1919; lower figure, for the five months ended December 31, 1919; remaining figures are for calendar years.

[b] Figure for 1919 is for the fiscal year ended July 31, 1919; upper figure for 1920 is for the nine months ended April 30, 1920, and lower figure, for the eight months ended December 31, 1920; the remaining figures are for calendar years. Figures for the years 1919, 1920, and 1921 were taken from Benson, *loc. cit.*, who obtained them from the books of the Company; those for 1922 and 1923 were obtained from *Moody's Industrials*, 1926, p. 2499, and do not include interest on bank balances or bond investments, rents on buildings, etc.

[c] Figures are for the calendar years; those for 1919, 1920, and 1921 were obtained from Benson, *loc. cit.*; those for 1922 and 1923 represent the differences in the Company's surplus account as shown in its annual reports to the Michigan Secretary of State and the Massachusetts Commissioner of Corporations, and, therefore, do not reflect profits distributed in dividends. They may, on the other hand, reflect changes in valuation practices.

[d] From the annual reports of the Company to the Michigan Secretary of State and the Massachusetts Commissioner of Corporations.

Looking forward to the future with undiminished confidence, the Company made great strides in its policy of industrial integration and in further expanding its productive capacity. On February 4, 1922, at a receiver's sale, it paid $8,000,000 for the plants and other assets of the Lincoln Motor Company, producer of high-priced automobiles; in December, the Michigan Land & Lumber Company, a subsidiary, purchased 30,000 acres of timber property, including sawmill and logging railroad; in February, 1923, the Company acquired the Allegheny Plate Glass Company, of Glassmere, Pennsylvania; in the same month, the Fordson Coal Company was incorporated in Delaware with a capital stock of $15,000,000 to take over coal properties in West

Virginia and Kentucky; in June, the Company obtained permission from the Federal Power Commission to develop electric power at the high dam between St. Paul and Minneapolis, for a new $10,000,000 manufacturing unit; in September, 400,000 acres were added to the holdings of its timber-owning subsidiary; in October, the factories of the Johannson Gauge Company, of Sweden and of Poughkeepsie, New York, were purchased; etc.[1] In 1924, 1925, and 1926, large additions were made to the blast furnaces, rolling mills, and other units of its River Rouge plants; new assembling factories were opened in Dallas, Texas; Somerville, Massachusetts; Copenhagen, Denmark; Plozensee, Germany; Yokohama, Japan; and in several other places. Important additions were made to a number of foreign and domestic manufacturing branches; tire, battery, and textile manufacture were introduced into the Company's Highland Park plant; and, among various other things, the Company began manufacture of airplanes, through the Stout Metal Airplane Company, a subsidiary.[2]

11. The New Ford Car

Its vast program of expansion was not accompanied, however, by a corresponding growth in output and sales. In each of the three years after 1923, declines rather than gains in output were recorded:[3]

1923.....	2,090,959	1925.....	1,990,995
1924.....	1,993,419	1926.....	1,447,915

In 1924 and 1925, the Company introduced a number of changes in its models: the body-lines were redesigned for greater grace; the traditional black finish gave way to lacquer paints in red, green, and gray; a few internal improvements were made; and new accessories were added. These

[1] Standard Statistics Company, Inc., *Miscellaneous Companies*, 1923 to 1927.

[2] *Ibid.*

[3] Figures for 1923, from *The Ford Industries*, published by the Company; the others, from *Moody's Manual of Industrials*, 1927.

small innovations, tardily incorporating only a few of the refinements previously introduced by most other manufacturers, were made only with great difficulty, expense, and delay; and they did not suffice to regain for the Company its lost momentum of ever-growing sales. As demand continued to remain stationary or to decline, the Company adopted the five-day week for the bulk of its employees, in order to maintain the size of its working force against an expected renewal of growth;[1] a little later, most of its factory workers were given only four, three, or even two days of employment per week. Hourly and daily wage-rates were raised somewhat to compensate the workers for diminished employment, but most of such wage increases were conditioned by, and proportioned to, increased productivity per worker.[2] The sales of other producers, on the other hand, continued to expand: in 1925 and in 1926, new high records of output were made by the American automobile industry.

The enormous material and technical resources of the Ford Motor Company had, perhaps, too long been directed at the single task of augmenting and perfecting its manufacturing organization. Too little attention had been paid to the changing character of the automobile market in recent years. During the long period when the bulk of automobile demand had come from first-time purchasers, the combination of cheapness, reliability, and practical utility had given the Ford car an unrivaled supremacy; now, a more discriminating market demanded that these elements be supplemented by minor technical refinements, and by various concessions in matters of color, fittings, body-design, accessories, etc. Extensive new construction and improvement of roads had greatly increased the pleasure use of the automobile; the relative importance of speed had grown.

[1] Henry Ford, in various published interviews, explained the five-day week as a measure designed to promote efficiency and to give workmen greater leisure.

[2] See announcement of the Company, November 13, 1926, paraphrased by the Standard Statistics Company, Inc., in the latter's *Miscellaneous Companies*, 1927.

In a 'pleasure car,' moreover, elements of 'style' are matters of great marketing importance. The products of other manufacturers, less secure in their 'price-classes,' had undergone progressive and conspicuous refinement, and much effort had been made to enhance their marketing appeal by external embellishment of various kinds. The Ford Motor Company had lagged conspicuously behind other producers in accommodating its product to the changing tastes of the public. Its essential philosophy of manufacture, to which all its vast resources had long been devoted, and to which it owed much of its remarkable success, rested securely upon the quantity production of a standardized, substantially unchanging, automobile. Only in the technique of production did its massive, centralized organization exhibit ready flexibility and elasticity.

Even in the field of price-competition, moreover, the Company was losing some of the pronounced advantage that it had long enjoyed. A number of other important producers had introduced attractive automobiles retailing at various prices ranging downward from $1000 to little more than $500, and these cars had found an expanding market. The unit sales of three of such low-priced vehicles (one of which, the Chevrolet, retails for very little more than the Ford car) in the five years ended in 1926 were as follows:[1]

Year	Chevrolet	Dodge	Essex
1922	243,322	164,037	34,962
1923	480,126	179,505	41,999
1924	314,733	225,641	72,702
1925	512,309	259,967	154,536
1926	732,145	331,764	167,716

The competitive advantage of the lower prices of the Ford models was diminished also by the great development of the installment-payment practice. The initial cash payment required for the purchase of other cars became relatively

[1] Figures as published by the Companies; those of the Essex are for fiscal years ended November 30, except that the figure for 1926 is for the thirteen months ended December 31; figures for the others are for calendar years.

little more than that required for the Ford; and the small differences between the operating costs of the lowest- and those of somewhat higher-priced automobiles further redounded to the advantage of other producers.

Tardily appreciative of considerations such as these, the Ford Motor Company, in the latter part of 1926, finally decided to discontinue the production of its famous 'Model T,' and to replace it with a brand new Ford car designed to possess the speed, beauty, and appointments that have latterly become important to automobile purchasers.

The new car, according to President Edsel B. Ford, will be produced 'in greater quantities than ever before.'[1] If this expectation is to be realized, however, it may be ventured, the Company must be prepared to change its models with far greater frequency than in the past. The 'style' element in motor cars appears to be increasing rather than diminishing in importance; and the competition of other producers, no longer merely potential even so far as price is concerned, promises to grow. The *domestic* automobile market, at least, is rapidly approaching stabilization; and in a market dominated by the replacement demand, a standardized vehicle, however attractive, which is produced in enormous quantities, must encounter great marketing difficulties.[2] Grave technical obstacles, moreover, confront an attempt to introduce frequent changes in a uniform product that is produced in quantities of 2,000,000 or more a year. The relatively slight changes in the Ford models in 1924 and 1925 occasioned much difficulty and delay; and the vast Ford plants were nearly at a standstill throughout the greater part of 1927, pending completion of the design of the

[1] Cf. various newspaper announcements; among others, those quoted in the *New York Times* of May 26, 1927, and the *Detroit Free Press* of June 1, 1927.

[2] Since this was written, the new Ford car has appeared, embodying numerous refinements in construction, appearance, and equipment. Making further concessions to the new character of the automobile market, the Company is offering each of the six body styles in four different color schemes.

new car and factory readjustments for its production. A considerable degree of inelasticity appears to be an inexorable penalty of great and highly centralized organization.[1]

A realization of the impending stabilization of the automobile market may have been partly responsible for the program of industrial integration carried on by the Ford Motor Company: such integration, alone, perhaps, could provide adequate outlet for its enormous resources. And it is easily possible that, in the near future, the Company will find that a single standardized automobile will no longer suffice to absorb its productive facilities: like the General Motors, Studebaker, Nash, Dodge, Willys-Overland, Reo, Hudson, and other producers, it may yet be forced by marketing considerations to introduce a wide variety of automobile products.[2]

12. Summary of the Financing of the Ford Motor Company

The foregoing account of the corporate history of the Ford Motor Company has necessarily reflected the Company's financial history and financial policies; hence, little more than a summary and analysis of these aspects remains to be presented.

The Ford Motor Company has always been a close corporation, and its policies, operating and financial, have conspicuously reflected the desires and judgments of its founder, Henry Ford, and, to a lesser degree, those of James Couzens.[3] On the operating side, this has been responsible for the Company's specialization in the field of low-priced vehicles, pro-

[1] The producing units of the General Motors Corporation, it may be noted, possess separate plants and technical staffs, and possess a large measure of autonomous control over their operations.

[2] The Lincoln enterprise, though not acquired specifically for this purpose, may be regarded as a step in this direction.

[3] Horace Rackham, one of the original Ford stockholders, and a co-defendant in the Dodge suit, declared in a deposition, 'This defendant states that the policy of the Ford Motor Company during its entire history has been suggested and directed by Henry Ford and James Couzens, up to the resignation of said Couzens' (1919).

duced in a standardized pattern and in tremendous quantities; and, on the financial side, it has caused the policies of the Company to reflect its founder's repugnance to all kinds of direct borrowing.[1] Partly in consequence of this attitude toward borrowing, partly because of factors common to the automobile industry as a whole, and partly as a result of the extraordinary profitableness of the Company's operations, the Ford Motor Company presents the striking case of a great and far-flung business enterprise that has consistently financed its operations and growth out of its own earnings, without resort to long- or short-term borrowing.

Turning first to the provision of fixed capital, we may repeat, what has several times been observed in the foregoing, that at the outset of the Company's history no great amount of capital was necessary to engage in the automobile manufacturing business. The automobile was a product of several thousand parts, each of which could be and was manufactured by a host of metal-working and wood-working shops. The assembling of the automobile was a relatively simple process requiring no elaborate machinery and no special plant, and virtually all of the assembling, also, could be and was completed by independent shops working under contracts made in advance. The bulk of the fixed capital required for the manufacture of the automobile could be obtained by diverting to this employment plant and machinery already in existence and owned by numerous concerns engaged in the business of making wood and metal products.

Thus the Ford Motor Company at its beginning was faced by no large problems of fixed capital. It rented small quarters in the rear of a carpenter's shop, and ordered from others the manufacture of the parts and most of the assembling of its product. Three years elapsed before the Company found it necessary to move to a new plant. Then it con-

[1] 'Mr. Ford's policy was to keep the company in such condition that it would never be necessary to borrow any money whatsoever.' (Rackham, *ibid.*)

structed a three-story building and devoted it almost entirely to assembling operations. On October 1, 1905, the Company valued its total machinery and equipment at $28,671; and two years later, on September 30, 1907, when its net worth had increased to $1,038,822, its real estate employed in the business was valued at $21,733, and its buildings, machinery and equipment at $238,778.

The fixed investment of the Company expanded rapidly in the years following, but this expansion was financed solely by the reinvestment of profits. The unusual notion that investments made by the stockholders through the corporate reinvestment of profits differed radically from investments made with borrowed money, in that the former did not subject the business to a continuing charge whereas the latter did, is thus expressed by Henry Ford in discussing the purchase of the Highland Park site and the construction of the new plants:[1]

> In order to pay for the new land and buildings, I slightly raised prices. I did exactly the same thing a few years ago — or rather, in that case I did not lower the prices as is my annual custom — in order to build the River Rouge plant. The extra money might in each case have been had by borrowing, but then we should have had a continuing charge upon the business and all subsequent cars would have had to bear this charge.

The confidence with which the Ford Motor Company faced the project of expending approximately $40,000,000 for new plants and equipment at River Rouge, Michigan, was reflected in the testimony of C. Harold Wills, then its chief engineer, who, when the wisdom of the expenditures was called into question in the Dodge suit, declared that the economies resulting from the new plant would be sufficient to pay for the entire cost of construction in little more than one year. In the mean time, the cost was to be defrayed from profits retained in the form of cash.

The remarkable liquidity of the operations of the Ford Motor Company throughout its history may be seen from

[1] Ford, *My Life and Work*, pp. 73–74.

Tables 23 and 24. Table 23 presents the net worth of the Ford Motor Company at the *beginning* of each fiscal year; its receipts from sales during the year; and its profits for the year. Table 24 shows the ratio of receipts to net worth and the ratio of profits to net worth for each year.

Two facts which bear directly upon the financing of the Company are strikingly reflected by these tables. In the first place, the high ratios of receipts to net worth during the earlier years of the Company's existence reveal the fact that the amount of invested capital required was relatively small as compared with the volume of business. Measuring the turnover of its invested capital by the ratio of receipts to net worth, we find that the average turnover of the net invested capital of the Company during the first ten years of its history was eight times a year.[1] In the second place, the annual profits of the Company were more than adequate to finance its great expansion directly out of earnings. The absolute size of these profits is shown in Table 23, and their potency when reinvested in the business should be considered in the light of the rapid turnover of the Company's capital. Solely through such reinvestment of earnings, the Company's net worth rose from a nominal $100,000 to nearly $17,000,000 during its first ten years of operations. During this period, moreover, greater sums were disbursed to its stockholders than were reinvested in the business. The dividend record of the Ford Motor Company, so far as the data are available, is presented in Table 25.

The working-capital requirements of the Ford Motor Company were minimized by factors common, as we have observed, to all American automobile producers. The great demand for automobiles and the large profits available for sales agents, in the early years of the industry and of the Ford enterprise, enabled the producers to exact substantial

[1] It is recognized, on the other hand, that ratios of profits and of sales based upon the amount of net invested capital held at the beginning of each year overstate the facts to the extent that invested capital is increased during the year; like other similar tables, those just presented are somewhat inaccurate on this ground.

TABLE 23. RECEIPTS, PROFITS, AND NET WORTH OF FORD MOTOR COMPANY, 1903–26 *

YEAR [a]	RECEIPTS	PROFITS	NET WORTH
1904 [b]	$1,336,800	$283,037	$100,000 (June 16, 1903)
1905	1,914,903	290,194	220,758 (Oct. 1, 1904)
1906	1,491,626	102,398	231,807 (Oct. 1, 1905)
1907	5,773,851	1,124,675	297,867 (Oct. 1, 1906)
1908	4,701,298	1,150,983	1,038,822 (Oct. 1, 1907)
1909	9,041,291	3,125,876 [e]	2,028,553 (Oct. 1, 1908)
1910	16,711,299	4,521,510	2,101,723 (Oct. 1, 1909)
1911	24,656,768	6,275,031	4,408,961 (Oct. 1, 1910)
1912	42,477,677	13,057,312	9,956,535 (Oct. 1, 1911)
1913	89,108,885	25,046,767	16,867,366 (Oct. 1, 1912)
1914	119,489,417	30,338,455	30,259,214 (Oct. 1, 1913)
1915 [c]	121,200,871	24,641,423	53,875,226 (Oct. 1, 1914)
1916	206,867,327	59,994,918	61,135,771 (Aug. 1, 1915)
1917	274,575,052	26,715,944	114,060,908 (Aug. 1, 1916)
1918	308,719,034	30,314,057	133,604,907 (Aug. 1, 1917)
1919	305,637,115	(a)	156,288,721 (Aug. 1, 1918)
1919 [d]	460,773,302	60,323,345 [f]	156,288,721 (Aug. 1, 1918)
1920	644,830,550	50,007,386 [f]	202,135,296 (Aug. 1, 1919)
1921	532,030,257	64,804,262 [f]	141,529,641 (Dec. 31, 1920)
1922	608,341,082	115,797,361 [f]	173,951,173 (June 30, 1921)
1923	858,863,758	93,030,282 [f]	359,962,693 (Dec. 31, 1922)
1924	750,905,928 [g]	115,105,416 [h]	459,305,581 (Dec. 31, 1923)
1925	(b)	94,560,396 [h]	559,740,997 (Dec. 31, 1924)
1926	(b)	75,270,895 [i]	639,631,393 (Dec. 31, 1925)
1927	(b)	(b)	714,902,288 (Dec. 31, 1926)

(a) Profit figure for fiscal year ended July 31, 1919, unavailable; profits for the five months ended December 31, 1919, totaled $10,371,690. (Benson.)

(b) Unavailable.

[a] Fiscal years: ended September 30, from 1904 to 1914, inclusive; July 31, from 1915 to 1919 (upper line), inclusive; calendar years thereafter.

[b] For the 15½ months from date of incorporation to September 30, 1904.

[c] For the 10 months ended July 31, 1915.

[d] Full calendar year of 1919; upper 1919 figure for fiscal year ended July 31, 1919.

[e] Profits for the calendar year 1909.

[f] Exclusive of interest from bonds and bank balances, rents, etc. (and after federal taxes).

[g] Up to November 12, 1924.

[h] Represents gain in surplus account, plus estimated dividends of $14,670,000.

[i] Represents gain in surplus account without addition for possible dividends.

* Sources: Figures for receipts up to and including fiscal year 1919, from Benson, *op. cit.*, p. 138 (obtained by him from the Company's books); subsequent receipt figures are those certified to by Herbert L. Lester, chief auditor of the Company, in chancery court, and reproduced by Standard Statistics Company, Inc., *Miscellaneous Companies*, 1927. Figures for profits between 1903 and 1909, inclusive, and for 1917 and 1918, from Benson, *loc. cit.*; for 1910 to 1916, inclusive, from Ford Motor Company's Exhibit 6 in Dodge suit (1070 Mich. Sup. Ct. Briefs and Records); for 1919 to 1923, inclusive, from certified report of Lester, *loc. cit.*; for 1924 to 1926, computed from Company's annual reports to Massachusetts Commissioner of Corporations and from estimated dividends paid. Net worth figures represent net equities of stockholders as disclosed in annual reports to the Michigan Secretary of State and Massachusetts Commissioner of Corporations, as of the dates given. The net worth at the *beginning* of each fiscal year (at end of preceding fiscal year) is given on the same line with figures of subsequent receipts and profits during the year in order to facilitate calculation of rates of profit. Some of the figures in this table differ from those in preceding tables, it will be noted, because of the differing fiscal periods upon which they are based.

TABLE 24. PERCENTAGE OF PROFITS TO NET WORTH, AND OF RECEIPTS TO NET WORTH, OF FORD MOTOR COMPANY, BY YEARS *

YEAR [a]	PROFITS TO NET WORTH (Per cent)	RECEIPTS TO NET WORTH (Per cent)
1904	283.0	1337.
1905	131.5	867.
1906	44.2	643.
1907	377.6	1938.
1908	110.8	452.
1909	126.8 [b]	446.
1910	215.2	795.
1911	140.5	559.
1912	132.1	438.
1913	148.5	528.
1914	100.3	395.
1915	45.7	225.
1916	98.1	338.
1917	23.4	241.
1918	22.7	231.
1919	32.7 [c]	196.
1919	38.6 [d]	294. [d]
1920	24.7 [e]	319.
1921	45.7	376.
1922	49.0 [f]	257. [f]
1923	25.8	238.
1924	25.1	163.
1925	16.9	(a)
1926	11.8	(a)

(a) Data unavailable.

[a] Fiscal periods as in Table 23 except as otherwise noted below. The percentage is computed in each case on the basis of the net worth shown at the *beginning* of each fiscal period.

[b] The profit figure for the fiscal year ended September 30, 1909, is not available; hence, the figure was 'constructed' by adding three-fourths of the profits for the calendar year 1909 to one-fourth of the profits for the fiscal year ended September 30, 1908.

[c] The profit figure for the fiscal year ended July 31, 1919, is not available; hence, the figure was 'constructed' by adding seven-twelfths of the calendar year profits of 1919 to the known profits for the five months ended December 31, 1918.

[d] Calendar year profits and receipts of 1919 compared with net worth of August 1, 1918.

[e] Calendar year profits and receipts of 1920 compared with net worth of August 1, 1919.

[f] Net worth of December 31, 1921, not available; hence, the figure was 'constructed' by adding to the net worth of June 30, 1921, one-third of the increase between the latter date and December 31, 1922, and the calendar year receipts and profits were compared with this figure.

* Computations based upon figures derived from sources of Table 23.

TABLE 25. DIVIDEND RECORD OF FORD MOTOR COMPANY *

YEAR	DIVIDENDS PAID	YEAR	DIVIDENDS PAID
1903	$12,000	1913	$11,200,000
1904	88,000	1914	12,200,000
1905	100,000	1915	16,200,000
1906	100,000	1916	3,200,000
1907	100,000	1917	9,200,000
1908	600,000	1918	5,200,000
1909	1,800,000	1919	24,175,385
1910	2,000,000		
1911	3,005,000		
1912	5,200,000		

* Sources: For years 1903 to 1906, inclusive, Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records, in which, however, the dividends for 1905 and 1906 are said to have 'approximated' 100 per cent annually; figures for the remaining years were submitted in stipulations filed by some of the Company's former stockholders before the United States Board of Tax Appeals in February, 1927. The amount of dividends paid each year since 1919 can only be roughly estimated from the tax returns of Henry and Edsel Ford; they are believed to have approximated $14,670,000 a year.

advance deposits of cash for all orders and to require cash payment upon delivery of the vehicles (sight draft being attached, usually, to the bill of lading). The suppliers of parts and materials, on the other hand, extended book-account credit of thirty to ninety days. Thus the automobile producer had a month or more in which to assemble and sell his vehicles before bills from suppliers became due; and much of his labor costs could be paid from dealers' deposits. Since the assembling process was short, and sales, immediate, the manufacturer could maintain a liquid condition without possessing a great amount of working capital and without excessive dependence upon banking accommodation. Senator James Couzens, in a letter to the present writer (previously quoted in part), declared:[1]

> As I have stated I do not recall that we asked any credit from the banks in the early years, because in addition to the advance deposits made by the dealers, the industry was on a strictly cash basis which enabled the company, in many cases, to receive payment for the cars before it was necessary to pay the parts manufacturers.

The expansion of the Ford Motor Company nevertheless

[1] Under date of February 2, 1924.

necessitated great increases in its working capital: overhead expenses rose; operating policies had to be initiated far in advance of current business, requiring advance purchases of large quantities of parts and materials; and the automobile industry as a whole faced an uncertain future in which sudden declines in sales might be experienced. Against such requirements and contingencies, the Company early developed a policy of maintaining unusually large balances in a number of widely distributed banks. The Company deliberately avoided the usual policy of arranging for possible banking accommodation against periods of unusual stress (though for no obvious good reason), and sought to make itself independent of banking support.[1] Table 26, taken from a compilation made by the Detroit Trust Company for submission in the Dodge suit, compares the Ford Motor Company's average ratio of cash balances to gross sales for the years 1914, 1915, and 1916 with those of other large manufacturing companies.

TABLE 26. AVERAGE RATIO OF CASH BALANCES TO GROSS SALES OF FORD MOTOR COMPANY AND OTHER LARGE MANUFACTURERS, 1914–16, INCLUSIVE

	PER CENT
Ford Motor Company	28.5
American Locomotive Company	32.6
General Electric Company	20.9
Railway Steel Spring Company	19.1
American Telegraph and Telephone Company	18.1
United States Steel Corporation	18.1
General Motors Corporation	15.0
Republic Iron & Steel Company	13.3
United States Rubber Company	11.0
Lackawanna Steel Company	9.0
American Tobacco Company	8.7
Central Leather Company	8.1
Studebaker Corporation	7.8

Defending the Company's policy of maintaining large cash balances, when this policy was criticized during the

[1] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

Dodge suit, Frank L. Klingensmith, then treasurer, declared that 'we have no banking connections that could furnish us money' in the event of a depression; that a slump in sales might force the Company to sell its cars on credit; and that its cash balances necessarily constitute a large proportion of the Company's working assets since its practice of sales for cash deprives it of current receivables as a form of working assets; and, further:[1]

> We have never borrowed money but one season. That was 10 or 11 years ago . . . If our production should be shut off for 30 days, we would have to borrow money. It has been testified before in this case that we have been 30 minutes away from a shutdown last winter; and if by an emergency we should be short of materials that would enable us to manufacture everything but one unit, which would prevent our selling completed cars, yet with our expenses of close to a million dollars a day, we are only 30 days from the end of our bank balance, including all our reserves . . . and everything else we have.

Table 27, taken from another compilation submitted in the Dodge suit, compares the Ford Motor Company's average ratio of total working assets to gross sales for the

TABLE 27. AVERAGE RATIO OF TOTAL WORKING CAPITAL TO GROSS SALES OF FORD MOTOR COMPANY AND OTHER ENTERPRISES, 1914–16, INCLUSIVE

	PER CENT
Ford Motor Company	37.7
Central Leather Company	82.2
General Electric Company	73.5
American Tobacco Company	71.0
Railway Steel Spring Company	60.4
Lackawanna Steel Company	49.2
United States Steel Corporation	47.5
United States Rubber Company	46.2
American Locomotive Company	43.8
Studebaker Corporation	42.7
Republic Iron & Steel Company	42.1
General Motors Corporation	29.5
American Telegraph and Telephone Company	29.0

[1] Dodge v. Ford Motor Company, 1070 Mich. Sup. Ct. Briefs and Records.

years 1914, 1915, and 1916 with those of other large manufacturing enterprises.

The Ford Motor Company, during the years cited, employed a relatively smaller amount of working capital in proportion to volume of sales than did certain other producers. It cannot be concluded from this fact, however, that its financial condition was less liquid than that of others. By contract with its sales dealers, the Company was assured of a cash market for its product immediately upon production, irrespective of current retail sales. The Company was thus relieved of the burden of carrying the accounts of its dealers and of carrying a large inventory of finished product. Its inventories of raw materials, moreover, were converted into finished goods at a very rapid rate: its cycle of manufacture, from the receipt of raw materials and parts to shipment of finished vehicles, was only twenty-two days before 1921; and it was cut to fourteen days by the radical economies effected during that year. In recent years, the integration of the Company's operations has diminished the rate of its capital turnover; and the difficulty of employing great amounts of capital effectively has diminished its rate of profit.

The book value of the Company's net assets on December 31, 1926, was $714,902,288; the market value of the Company was at least $1,000,000,000 (the price offered by Hornblower & Weeks, who expected to resell it to the public, by the issue of securities, for perhaps twenty-five per cent more than this price).[1] With the exception of $28,000 invested in cash, and patents, contracts, and other intangible items valued at $72,000 more, the entire gigantic investment of the enterprise has been built up out of reinvested profits.

[1] Testimony of John W. Prentiss, partner in Hornblower & Weeks, before the United States Board of Tax Appeals, in Washington, D.C., February 2, 1927.

CHAPTER IV

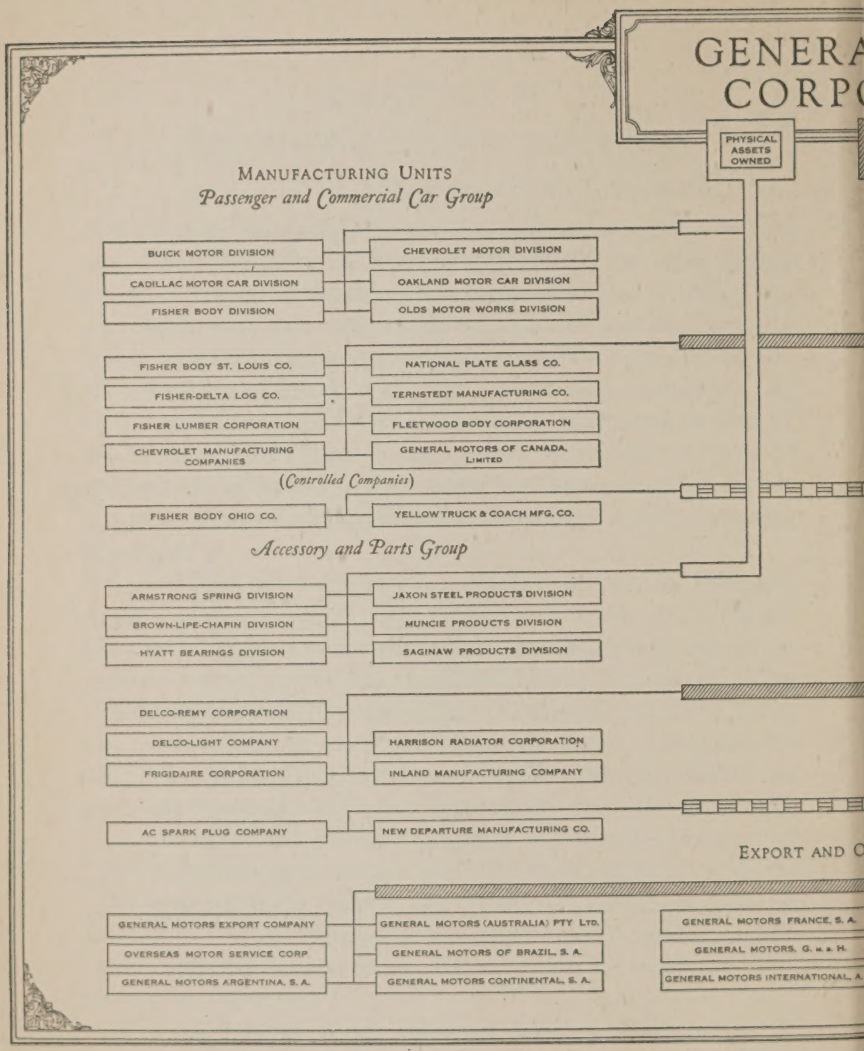
THE GENERAL MOTORS CORPORATION

1. Nature and Importance of Business

The General Motors Corporation, because of its great size, the wide range of its automobile products, its high degree of industrial integration, the volume and activity of its securities in the investment and speculative markets, and its important financial connections, is widely regarded as the dominant organization in the automobile industry. In many quarters its position is held to be analogous to that of the United States Steel Corporation: the current volume of its operations is regarded as reflecting the state of the entire automobile industry and as indicative of the trend of general business.

It has been observed that, as respects amount of invested capital and volume of motor-vehicle output, the General Motors Corporation is exceeded in importance in the automobile industry only by the Ford Motor Company. The difference between the amounts of invested capital of these two companies, however, is relatively small, and may be more than offset by differences in their valuation practices; and the General Motors Corporation has recently outstripped the Ford Motor Company in financial volume of sales, as well as approached it in volume of physical product. The motor-vehicle output and financial volume of sales of each of the two enterprises and the aggregate American automobile output for the seven years ended in 1926 are presented in Table 28.

The net profits of the General Motors Corporation in 1925 were exceeded only by those of the American Telephone and Telegraph Company and the United States Steel Corporation among American corporations; in 1926 its net profits surpassed those of any other American business



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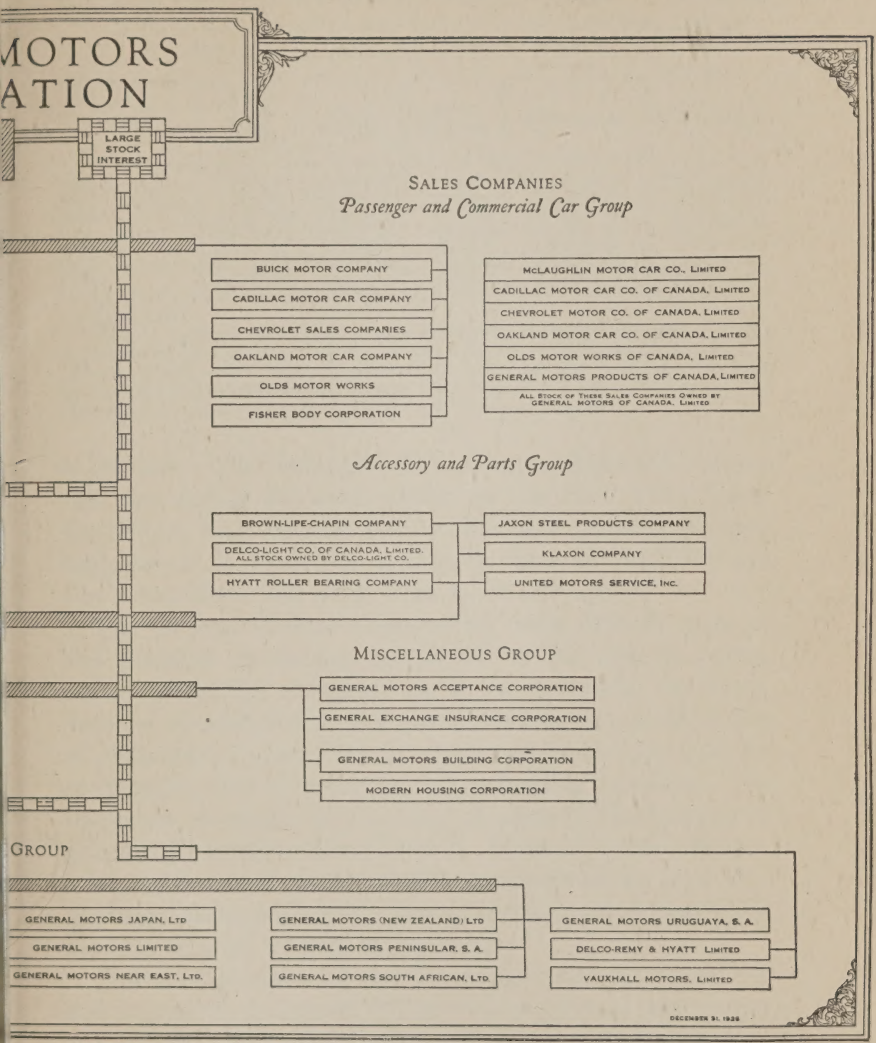
MOTORS
ATION
LARGE STOCK INTEREST
SALES COMPANIES
Passenger and Commercial Car Group
BUICK MOTOR COMPANY
CADILLAC MOTOR CAR COMPANY
CHEVROLET SALES COMPANIES
OAKLAND MOTOR CAR COMPANY
OLDS MOTOR WORKS
FISHER BODY CORPORATION
McLAUGHLIN MOTOR CAR CO., LIMITED
CADILLAC MOTOR CAR CO. OF CANADA, LIMITED
CHEVROLET MOTOR CO. OF CANADA, LIMITED
OAKLAND MOTOR CAR CO. OF CANADA, LIMITED
OLDS MOTOR WORKS OF CANADA, LIMITED
GENERAL MOTORS PRODUCTS OF CANADA, LIMITED
ALL STOCK OF THESE SALES COMPANIES OWNED BY GENERAL MOTORS OF CANADA, LIMITED
Accessory and Parts Group
BROWN-LIPE-CHAPIN COMPANY
DELCO-LIGHT CO. OF CANADA, LIMITED
ALL STOCK OWNED BY DELCO-LIGHT CO.
HYATT ROLLER BEARING COMPANY
JAXON STEEL PRODUCTS COMPANY
KLAXON COMPANY
UNITED MOTORS SERVICE, INC.
MISCELLANEOUS GROUP
GENERAL MOTORS ACCEPTANCE CORPORATION
GENERAL EXCHANGE INSURANCE CORPORATION
GENERAL MOTORS BUILDING CORPORATION
MODERN HOUSING CORPORATION
GROUP
GENERAL MOTORS JAPAN, LTD
GENERAL MOTORS LIMITED
GENERAL MOTORS NEAR EAST, LTD.
GENERAL MOTORS (NEW ZEALAND) LTD
GENERAL MOTORS PENINSULAR, S. A.
GENERAL MOTORS SOUTH AFRICAN, LTD.
GENERAL MOTORS URUGUAYA, S. A.
DELCO-REMY & HYATT LIMITED
VAUXHALL MOTORS, LIMITED
DECEMBER 31, 1928

GENERAL MOTORS CORPORATION

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TABLE 28. OUTPUT AND FINANCIAL VOLUME OF SALES OF GENERAL MOTORS CORPORATION AND FORD MOTOR COMPANY, AND AGGREGATE AMERICAN OUTPUT, 1920–26 *

YEAR	AGGREGATE AMER. OUTPUT	FORD OUTPUT	G.M. OUTPUT	FORD SALES	G.M. SALES
1920	2,204,947	1,074,336	393,075	$644,830,550	$567,320,603
1921	1,660,082	1,013,958	214,799	532,030,257	304,487,243
1922	2,655,624	1,351,333	456,763	608,341,082	463,706,733
1923	4,079,992	2,090,959	798,555	858,863,758	698,038,947
1924	3,606,815	1,993,959	587,341	750,905,928	568,007,459
1925	4,312,456	1,990,995	835,902	750,000,000 [a]	734,592,592
1926	4,428,286	1,447,915	1,234,850	600,000,000 [a]	1,058,153,338

[a] Estimated.

* Sources: Aggregate American output as reported by National Automobile Chamber of Commerce; Ford output, 1920–23, inclusive, from *The Ford Industries, loc. cit.*, and 1924–26, inclusive, from *Moody's Industrials*, 1927; General Motors output as reported by the Corporation in its annual reports; Ford sales as in Table 23 above; General Motors sales as reported by the Corporation in its annual reports.

enterprise.[1] The securities of the General Motors Corporation are among the most active on the New York Stock Exchange; their market values fluctuate greatly; at their high points in 1926, the aggregate value of the Corporation's securities was more than $2,000,000,000.

The General Motors Corporation owns directly most of the physical properties employed by its manufacturing units; primarily, therefore, it is an operating company. Some of its multifarious interests, however, are in the hands of separate companies whose capital stock it owns entirely or in large part; to this extent it is a holding company. The corporate structure of the General Motors Corporation is graphically portrayed in Chart V. Most of its subsidiaries, it should be noted, are separately incorporated for legal convenience alone, and their nominal capitalizations bear little relation to their volume of business.

The chief products of the Corporation and its subsidiary and affiliated companies fall into three groups: motor cars and trucks; automobile parts and accessories, a portion of the output of which is sold to independent automobile manufacturers; and miscellaneous products and services, some of

[1] Standard Statistics Company, Inc., report numbered G 19.

which are, and others of which are not, connected with the automobile industry.

The first and most important group, that of finished cars and trucks, comprises seven distinct lines of passenger vehicles, produced in 72 different models and retailing at prices ranging from $525 to $4350, and several lines of motor trucks and motor busses. The passenger cars are produced by five separate operating organizations, known as 'divisions,' all of the assets of which are owned directly by the Corporation;[1] and connected with each division is a sales unit of similar name (for example, Buick Motor Company), the nominal capital stock of which ($10,000 in each case) is owned by the Corporation. Two of the passenger-car divisions also produce commercial vehicles, the Chevrolet and Pontiac trucks; the latter, like the Pontiac passenger cars, are produced by the Oakland division. One other division, the Cadillac, also produces two lines of passenger vehicles — the Cadillac and La Salle. Most of the truck-producing operations of the Corporation have been centered in the Yellow Truck and Coach Manufacturing Company, which the Corporation controls by ownership of a majority of the voting stock. The Corporation owns all of the common stock of Vauxhall Motors, Ltd., an English producer of motor vehicles; and all of the capital stock of General Motors of Canada, Ltd., Canadian producer of General Motors vehicles. Fifteen foreign subsidiaries conduct assembling operations and supervise the distribution of the Corporation's products in Europe, Asia, Africa, Australia, New Zealand, and South America.[2]

The Corporation's announced policy is to 'establish a complete line of motor cars from the lowest to the highest price that would justify quantity production.'[3] This policy

[1] The Chevrolet division has several manufacturing units which are separately incorporated, all of their stock being owned by the Corporation.

[2] These statements of fact are based upon data contained in the annual reports of the General Motors Corporation.

[3] Annual report for 1923.

has been pursued with great success in recent years, and its vehicles have become leading competitors in their respective price-classes of the products of nearly all other American automobile producers. Data bearing on the relative financial importance of its various constituent organizations are largely withheld by the Corporation, but it is informally conceded by several of the leading officials that the Buick division, up to the end of 1926, has been by far the most important and the most profitable.[1] The Buick leadership is now being challenged, however, by the Chevrolet division. As respects volume of output, the relative importance of the Corporation's vehicle-producing divisions in recent years is reflected by Table 29.

TABLE 29. OUTPUT OF VEHICLE-PRODUCING DIVISIONS OF GENERAL MOTORS CORPORATION, 1922–26 *

DIVISION	1922	1923	1924	1925	1926
Chevrolet	243,322	480,126	314,733	512,309	732,052
Buick	138,501	218,286	166,952	208,575	280,009
Oakland	20,853	35,974	36,512	45,380	58,537
Pontiac [a]					77,134
Oldsmobile	22,434	34,853	45,731	43,935	59,536
Cadillac [a]	22,021	22,201	17,905	22,773	27,489
G.M.C. Truck [a]	5,277	7,012	5,652		

[a] The Pontiac was introduced by the Oakland division in 1926; the General Motors Truck division was transferred in 1925 to the Yellow Truck & Coach Manufacturing Company, the operations of which are not consolidated in the accounts of the Corporation; the Cadillac division introduced the La Salle car in 1927.

* From data compiled for the writer by members of the treasurer's staff of the General Motors Corporation. Does not include discontinued lines.

Acquisitions by purchase or by exchange of securities of various parts- and accessories-producing enterprises have done much to integrate the manufacturing operations of the General Motors Corporation. The operations of thirteen of such enterprises, which the Corporation controls by owner-

[1] It may be noted that the Buick organization won first place at the New York Automobile Show in each of the nine successive years 1918–26, inclusive, by reason of leadership in financial volume of sales over all other members of the National Automobile Chamber of Commerce; in 1927, it was displaced by the Chevrolet organization.

ship of physical assets or capital stock (cf. Chart V), are consolidated in its accounts with the business of its vehicle-producing units. Some of them, like the Fisher Body division and its subsidiaries, are exceedingly important enterprises which transact a large volume of business with independent automobile producers.[1] Their products are extensively advertised in automobile trade publications, and the Corporation maintains, in the main, their operating autonomy.[2] Through the Fisher Body division, the Corporation owns standing timber, operates hardwood mills, glass and hardware factories, etc., and manufactures automobile bodies for its own vehicle divisions and for independent producers.

The Corporation includes among its accessory and parts organizations, the Delco-Light Company, producer of water pumps, farm lighting and power plants, and electric refrigerators; and the Frigidaire Corporation, a sales subsidiary for the distribution of Frigidaire refrigerators. These products, extraneous to the automobile industry, were added to the Corporation's lines as if by accident, as parts of sundry acquisitions made in 1919; and for some years their rôle was unimportant. Recently, however, with the growing use of electric refrigerators, this branch of the Corporation's activities has expanded tremendously: the Corporation's investment in refrigerator manufacture has increased to approximately $40,000,000, and the Frigidaire earnings in 1926, according to President Sloan, were more than sufficient to pay dividends on all the preferred stock of the General Motors Corporation.[3]

[1] This is true of the A. C. Spark Plug Company, Delco-Remy Corporation, Brown-Lipe-Chapin division, Hyatt Bearings division, New Departure Manufacturing Company, and Harrison Radiator Corporation, among others.

[2] Cf. Stockholders' Bulletins of General Motors Corporation. The advertisements of these organizations frequently make no mention of their affiliation with General Motors: see, for example, *Automotive Industries*, vol. 56, no. 7.

[3] See statement of President A. P. Sloan, paraphrased in *Automobile Industries*, April 27, 1927.

Included in the Corporation's balance sheet under the heading of 'Investments' on December 31, 1926, were the following: (1) The General Motors Acceptance Corporation, which is engaged in the business of financing the wholesale and retail purchase of General Motors products. Organized under the banking laws of New York, its entire capital stock, $25,000,000, is held by the General Motors Corporation. Apart from its paid-in capital and surplus, this subsidiary obtains most of its funds by debenture note-issues: it sold two note-issues of $50,000,000 each through J. P. Morgan & Co. in 1926 and 1927. (2) The General Motors Building Corporation, which owns and operates the General Motors Building in Detroit. (3) The Ethyl Gasoline Corporation, owned jointly by the Standard Oil Company of New Jersey and the General Motors Corporation (each holding 7500 shares of $100 par value common stock), distributor of Ethyl gasoline, a compound originated by a General Motors research agency. (4) The General Exchange Insurance Corporation, which writes insurance on vehicles financed by the General Motors Acceptance Corporation. (5) The Yellow Truck and Coach Manufacturing Company, which, as before noted, has taken over the Corporation's truck division. The Corporation's investment in this Company is valued on its books at $24,091,000, and includes fifty-seven per cent of the voting stock; the Company will probably be merged shortly with the General Motors Corporation. (6) Vauxhall Motors, Ltd., which, also noted previously, produces and sells Vauxhall motor cars in England. The Corporation owns all of its ordinary stock, valued at $2,575,291. (7) Five enterprises engaged in providing housing facilities for the Corporation's employees. The Corporation's investment in these enterprises was $8,461,334 on December 31, 1926, the capital stock of each being owned by the Corporation or one of its subsidiaries.

In addition to the interests already cited, the Corporation and its subsidiaries own all of the capital stock of more than a score of sales companies connected with one or another of its various products.

The administration of the host of interests which comprise the General Motors Corporation — its factories, alone, are located in some forty different cities — offers a fruitful field for extended exposition; the limits of this study, however, permit only a brief description. The underlying principle of the Corporation's administrative policy is that of a federation of coördinated but semi-autonomous organizations. Each organization possesses its own physical facilities, its own operating personnel, and a large measure of control over its operating policies. 'For the sake of efficiency, we deliberately preferred to be a collection of small or moderate-sized units, well coördinated, rather than one large consolidated business,' declared the Corporation's president in a recent published article.[1] 'It is a General Motors policy to decentralize control, at the same time taking advantage of the strength, resources, and experience of the organization as a whole. . . .' declared one of the operating vice-presidents in a similar article.[2] The existing scheme of administration, while it permits a large measure of operating autonomy for each of the constituent organizations, provides for centralized supervision of capital expenditures, inventories, purchases, and cash resources. Maximum budget allowances for each unit limit the capital and inventory expenditures. Interplant transactions are settled chiefly by book entries. The cash reserves of the Corporation are pooled in a dozen New York and Detroit banks. The daily receipts of each unit are deposited in a local bank, which, through the telegraph service of the Federal Reserve System, transmits all but a stated maximum local deposit, to the Corporation's chief banking depositories. The latter transmit funds by telegraph, whenever needed, to any of the banks in thirty-three cities that carry disbursing accounts of the Corporation. The deposits of the Corporation are

[1] Alfred P. Sloan, Jr., 'The Most Important Thing I Ever Did,' in *System*, August, 1924.

[2] C. S. Mott, 'Organizing a Great Industrial,' in *Management and Administration*, May, 1924.

everywhere made to draw interest, and each account serves as the basis of a possible line of bank credit averaging five times the size of the average deposit balance.[1] A number of advisory bodies and 'interdivision relations committees' maintain constant contact with every unit and seek to establish coördinated policies with respect to sales, purchasing, advertising, operating, and engineering problems.

The management of the Corporation proper is in the hands of a board of directors of thirty-two men, evenly divided between representatives of important stockholding interests and active officers of the Corporation; a finance committee of thirteen, among whom nationally known financiers are conspicuous; and an executive committee of nine. In addition to the chairman of the board of directors and the president of the Corporation, there are sixteen vice-presidents, most of whom are the chief executives of the Corporation's larger constituents.

The General Motors Corporation stands ninth among American corporations in volume of securities outstanding, and among the first three or four in total market value of securities. Its capital structure, however, is extremely simple. When certain changes in its capitalization, authorized between 1924 and 1927, are completed, the Corporation will have outstanding only two classes of securities: common stock of $25 par value (17,400,000 shares issued, and 30,000,000 shares authorized); and seven per cent preferred stock. The capitalization on December 31, 1926, prior to the substitution of two shares of $25 par value common stock for each share of no par value common stock (authorized September 12, 1927), and to the completed conversion of older issues of preferred and debenture stocks, was as follows:

[1] Donaldson Brown, 'Pricing Policy in Relation to Financial Control,' and Alfred H. Swayne, 'Mobilization of Cash Reserves,' in the February, 1924, and January, 1924, numbers, respectively, of *Management and Administration*. Mr. Brown and Mr. Swayne are vice-presidents of the Corporation.

Seven per cent preferred stock (authorized, $500,000,000)	$105,333,200
Six per cent preferred stock (outstanding and authorized)	1,795,900
Six per cent debenture stock (outstanding and authorized)	2,786,900
Common stock, no par value (book value $50)	435,000,000
Surplus	89,341,318
Interest of minority stockholders in subsidiaries	2,420,685
	$636,678,003

The total number of stockholders during 1926 ranged between 47,805 and 72,665; on March 12, 1927, the number of common stockholders was 36,536.

Control of the General Motors Corporation is possessed by E. I. Du Pont de Nemours & Co. and affiliated interests. The Du Ponts first acquired stock in the Corporation in 1915; by the end of 1917, E. I. Du Pont de Nemours & Co. had acquired 27.6 per cent of the Corporation's outstanding common stock.[1] In November, 1920, through a subsidiary organized for the purpose, the Du Pont interests purchased the holdings of William C. Durant, then president of the General Motors Corporation, and Pierre S. Du Pont replaced Durant as president of the Corporation.[2] In 1923, when the Du Ponts, by previous arrangement, were called upon to sell Durant's holdings, approximately 2,250,000 shares, to the Managers Securities Company for resale to executive employees of the General Motors Corporation, they sold, instead, a thirty per cent interest in the General Motors Securities Company, a Du Pont subsidiary which owned about 7,500,000 shares of General Motors common stock — thus retaining undiminished control of their holdings.[3] On September 9, 1927, following receipt of notice from the Federal Trade Commission that relations between the Du Pont company, General Motors, and the United States Steel Corporation were under investigation, Mr. Irénée Du Pont made public a statement declaring that the Du Pont company now owned the equivalent of 1,966,244 shares of

[1] See 1918 annual report of E. I. Du Pont de Nemours & Co.

[2] See 1920 annual report of E. I. Du Pont de Nemours & Co.

[3] See 1923 reports of E. I. Du Pont de Nemours & Co. and the General Motors Corporation.

General Motors common stock, or 22.6 per cent of the total outstanding.[1]

Control of the General Motors Corporation by the Du Pont interests is furthered not only by the wide distribution of General Motors common stock, which makes effective minority control possible, but also by the large stockholdings of groups affiliated with the Du Pont company. J. P. Morgan & Co. acquired a substantial interest in the common stock of the Corporation in June, 1920, when it underwrote an issue of 3,219,856 shares at $20 a share,[2] and six Morgan representatives were shortly thereafter elected to the board of directors.[3] The Morgan firm increased its General Motors holdings in November, 1920, when it obtained a one-fifth interest in the Du Pont Securities Company for its services in underwriting $20,000,000 of one-year collateral trust notes issued by the latter to finance the purchase of approximately 2,250,000 shares of General Motors common stock from Durant.[4] Nobel Industries, Ltd., a British firm, subscribed jointly with the Canadian Explosives, Ltd., for 1,800,000 shares of the Morgan underwriting of General Motors common stock in June, 1920. E. I. Du Pont de Nemours & Co. is a stockholder in the Canadian enterprise;[5] and, because of their similar industrial interests (explosives and chemicals), may be presumed to be allied with the British concern.

The control of the Corporation by the powerful Du Pont and Morgan industrial and financial interests undoubtedly

[1] Associated Press dispatch of September 9, 1927, published in the *Detroit Free Press* of the following day. Two shares of $25 par value common stock have since been substituted for each share of no par value stock, increasing the Du Pont holdings to the equivalent of 3,932,488 shares.

[2] Cf. announcement of J. P. Morgan & Co., *Commercial and Financial Chronicle*, vol. 110, p. 2390.

[3] E. R. Stettinius, George F. Baker, Seward Prosser, C. M. Wooley, W. H. Woodin, and Owen Young.

[4] Cf. 1920 report of E. I. Du Pont de Nemours & Co. This subsidiary was later consolidated with the General Motors Securities Company.

[5] See 1922 report of E. I. Du Pont de Nemours & Co.

promotes a more generous accommodation of the Corporation's financial requirements at the hands of commercial banks. Like other American motor-vehicle manufacturers, its credit needs are extremely small in ordinary times. Nevertheless, the integrated character of its operations requires the maintenance of large inventories of materials, and any slackening in the rate of production quickly results in enormous increases in these inventories, commitments for which are made far in advance; hence, at times, the Corporation may require very substantial banking accommodation. The chief issue of preferred stock, it may be noted, is scarcely calculated to jeopardize the control of the common stockholders: the preferred stock has no direct voice in the management, except that it may veto mortgaging of the Corporation's properties; and its contingent control, effective after two successive defaults in its quarterly dividend claims, is limited to the election of twenty-five per cent of the board of directors. Its dividend rights, on the other hand, are exceedingly well protected: additional issues of preferred must wait upon equal increases in corporate surplus or in issued common stock; no cash dividends are payable on common stock unless the excess of quick assets over current liabilities remains at seventy-five per cent or more of the par value of the outstanding preferred, and unless the common stock and surplus equity behind the preferred remains at least as great as it was in 1924, when the present preferred stock was issued to consolidate previous varieties; and the preferred dividends are cumulative.

The General Motors Corporation, under the name of the General Motors Company (New Jersey), was the first large combination in the automobile industry. Since its formation in 1908, several other important combinations have been projected or actually organized; but it alone has proved conspicuously successful. The General Motors enterprise was likewise the first automobile manufacturing organization to enlist the services of investment bankers in any large measure; and the volume of its corporate financing through

these agencies has exceeded that of any other automobile company. The association of the enterprise with Eastern banking houses and financiers soon after its birth, and its status then as a holding company, early gave it a financial rather than industrial character; and in diminished degree this character has persisted to the present day.

The present General Motors Corporation was incorporated under the laws of Delaware on October 13, 1916. By exchange of securities it acquired all of the capital stock of the General Motors Company, which had been incorporated in New Jersey on September 16, 1908. The latter company was dissolved on August 1, 1917; its principal constituent companies were likewise dissolved at this time, and the General Motors Corporation took over direct ownership and operation of the bulk of the physical properties previously controlled by the holding company and its subsidiaries. The history of the General Motors Corporation, to which we now turn, begins, therefore, with that of the original New Jersey company and its constituents. We begin with the Buick Motor Company, the nucleus of the original combination, and its most important single constituent since.

2. The Buick Nucleus

David Buick, in 1900, entered the business of manufacturing stationary motors for farm use under the name, the Buick Manufacturing Company. He became indebted for materials to Benjamin Briscoe, then a producer of sheet-metal stampings and later an important figure in the automobile industry. To secure this indebtedness of about $2000, and a loan of $1500 more that Buick needed for his experiments with an automobile motor, Briscoe arranged with Buick to form the Buick Motor Company, $99,700 of the $100,000 capital stock of which was pledged to Briscoe to secure the latter's claims.[1] This company was incorporated in Michigan on May 19, 1903.

[1] Cf. Benjamin Briscoe, 'The Inside Story of General Motors,' published as a series of four articles in the *Detroit Saturday Night* of January 15, 22, 29, and February 5, 1921.

Briscoe planned to take over ownership and operation of the Buick Motor Company in September, 1903, if Buick was not then able to meet his obligations, for Briscoe's business of metal stampings had already developed into an enterprise principally devoted to the manufacture of automobile radiators and parts.[1] Becoming interested in a motor designed by J. D. Maxwell, who had collaborated with the Apperson brothers, Elwood Haynes, R. E. Olds, and other pioneer automobile designers, Briscoe decided to dispose of his interest in the Buick company and to ally himself with Maxwell in what became the Maxwell-Briscoe Motor Company.[2] An arrangement was made with the Flint Wagon Works, of Flint, Michigan, which had begun to experiment with automobile manufacture, whereby that company took over the operation of the Buick enterprise. The Buick Motor Company was reincorporated on January 30, 1904, with a capital stock of $75,000, half of which was listed as paid for in cash, and $15,000 of which was given to David Buick.[3] The new company quickly became involved in difficulties: a total of sixteen vehicles was produced in 1903 and only thirty-six in 1904; the Company was obliged to give liens on its property to secure its creditors; finally, its obligations to Flint banks late in 1904, said to have been large enough to threaten the safety of three of the town's financial institutions, forced a reorganization.[4] It was in connection with this reorganization that William Crapo Durant, later promoter of the General Motors Combination and one of the outstanding figures in the automobile industry, first entered the automobile business.

Durant, a grandson of a former governor of Michigan, had been millhand, drug clerk, patent-medicine salesman,

[1] Cf. Benjamin Briscoe, 'The Inside Story of General Motors,' published as a series of four articles in the *Detroit Saturday Night* of January 15, 22, 29, and February 5, 1921.

[2] *Ibid.*

[3] Cf. articles of incorporation filed with the Michigan Secretary of State.

[4] Cf. W. A. P. John, 'That Man Durant,' in *Motor*, January, 1923.

real estate and insurance agent, traveling salesman for a cigar company, and secretary of the Flint Water Works, all before he had attained the age of twenty-five. In 1886, with the aid of J. Dallas Dort, then a clerk in a Flint hardware store, Durant acquired rights to a patented road cart; and, with a total capital of $2000, the two men organized the Durant-Dort Carriage Company. In a few years, with Durant supervising sales and Dort in charge of factory operations, this enterprise became one of the largest in the wagon industry, operating fourteen plants in the United States and Canada, and producing 150,000 vehicles a year.[1]

In 1904, the Durant-Dort Carriage Company, capitalized at $2,000,000, was one of the largest and most successful business enterprises in Flint; its large earnings had already previously tempted its principal owners, who were forty-three and forty-two years of age, respectively (in 1904), to engage (albeit unsuccessfully) in bicycle manufacturing and other ventures; Durant, by virtue of his business success, his wide acquaintance, and his personal popularity, possessed a very high reputation in the Flint community; and the wagon and carriage business in 1904 was commonly considered as closely related to the growing automobile business. In view of these factors, it is not surprising that, when the prospective failure of the Buick Motor Company threatened to involve important Flint creditors, Durant was called upon, and was willing, to undertake the reorganization of the Company.[2]

Durant immediately had the authorized capitalization of the Company increased from $75,000 to $500,000, and procured subscriptions to $250,000 of the stock. It does not appear that he was able to obtain new cash capital for the Company immediately, but he did succeed in obtaining new credit and extensions of time from old creditors.[3] The next

[1] W. A. P. John, *loc. cit.* [2] *Ibid.*

[3] Only $75,000 of the $250,000 of stock subscribed on November 26, 1904, was listed as paid in, and this amount included the investment of the old stockholders. In its annual report for 1905 the Company lists all of its issued common stock as having been paid for in property. The

several months were spent in improving the design of the Buick automobile and in reducing the Company's capital requirements by arranging for the purchase of automobile parts from other firms. Durant procured the rights (in his own name) to a number of patented and unpatented engine and chassis improvements, and on August 1, 1905, formally transferred these rights, plus a contract for parts with the Weston-Mott Company (in which several of his friends shortly after became interested), and real estate valued at $5000, to the Buick Motor Company in return for $115,000 of the common stock.[1] By the middle of 1905, the Buick Motor Company had begun to produce and to market the Buick automobile in profitable volume, selling 673 cars by the end of the year.

On September 11, 1905, the Company increased its authorized capital stock from $500,000 (all common stock) to $900,000 of common stock and $600,000 of seven per cent cumulative, full-voting, redeemable, preferred stock. On this date $619,000 of the common stock was listed as subscribed, of which $388,170 was paid in; and $568,170 of the authorized preferred stock was listed as subscribed and paid in. The consideration received for the paid-in common stock was listed as 'property'; $300,000 of the preferred stock was issued for cash; and $268,170, for the surrender of claims against the Company.[2]

As has just been noted, the Buick Motor Company had received no actual cash for its common-stock issues up to this time. According to data furnished by Durant for a magazine article,[3] $303,800 of the original $500,000 of com-

bulk of the creditors' claims ($268,170) was converted into preferred stock on September 11, 1905. (Cf. amendment to charter filed as of this date with the Michigan Secretary of State.)

[1] Formal notice of these transactions was filed with the Michigan Secretary of State on October 7, 1905; the Weston-Mott contract was valued at $25,000.

[2] Amendments to charter filed with the Michigan Secretary of State as of September 11, 1905.

[3] W. A. P. John, 'That Man Durant,' in *Motor*, January, 1923. Mr. John submitted the first draft of his manuscript to Mr. Durant before publication.

mon stock was issued for promotion services; of this amount, Durant received $202,000, which he transferred to the Durant-Dort Carriage Company; and the larger part of the remainder was divided between the old stockholders of the Company and the subscribers to the preferred stock (who received a bonus of twenty-five per cent in common stock with their subscriptions to the preferred). The annual report of the Buick Motor Company to the Michigan Secretary of State as of December 30, 1905, lists among its assets $412,865 of 'good-will,' and $115,000 of patents, these items constituting more than sixty per cent of the Company's assets.

In the following year the Buick Motor Company definitely began its career of expansion and profit-making. Durant's selling experience and country-wide acquaintance, acquired in connection with his carriage business, enabled him to build up quickly an effective dealer-organization; the Company's new product, a four-cylinder automobile selling at about $1000, proved to be very popular; machine shops and more formal parts-making establishments were already available in and around Detroit and Flint, enabling the Company to expand its business without greatly increasing its fixed capital requirements; and the practice of advance deposits on dealers' orders and of sales for cash, which had early become established in the automobile industry, simplified the working-capital problem. In 1906, the Company sold 2295 cars as compared with 673 the year before, and was, next to the Cadillac Motor Car Company, the largest American producer of automobiles.[1] By October 1, the 'good-will' item of $412,865 of the previous December had been entirely written off the books; and, with an increase of only $30,830 in paid-in capital stock equities ($15,830 of preferred stock issued for cash and $15,000 of common stock issued for 'property'), the

[1] Figures obtained from the records of the General Motors Corporation. The Cadillac production in 1906 was 4045, the Ford, 1599; the latter figure is for the fiscal year ended July 31, however; the others, for the calendar year.

net worth of the Company had nevertheless increased to $1,077,076.[1]

In 1907, despite the disturbed financial condition prevailing in the country, the Company increased its business by more than fifty per cent, its volume of output (sold) being 3848 cars, as against 8759 cars sold by the Ford Motor Company, and 2867 by the Cadillac Motor Car Company. On June 3, 1907, the Company increased its authorized amount of common stock from $900,000 to $2,000,000, and a stock dividend of $250,000 par value of common stock was declared. By October 1, 1907, all intangible assets had been written off the books of the Company, and its net assets, consisting of real estate, plant and equipment, cash, and receivables, less its outside liabilities, had risen to $2,880,478.[2]

In 1908, the year of the organization of the General Motors Company, the Buick Motor Company was the largest producer of automobiles in the United States, producing a total of 8487 cars, as compared with 6181 produced by the Ford Motor Company, and 2380 by the Cadillac Motor Car Company.[3] Its large earnings in this year enabled it to more than double its investment in real estate, plant and equipment, to retire $100,000 of its preferred stock, and to make investments in various parts-making enterprises.[4] On October 1, 1908, the date of its acquisition by the General Motors Company, its net worth totaled $3,417,142, almost all of which had been built up by the reinvestment of earnings.

[1] Annual report to the Michigan Secretary of State as of October 1, 1906.

[2] Annual report to the Michigan Secretary of State as of October 1, 1907.

[3] Figures for Buick and Cadillac, obtained from the records of the General Motors Corporation, are for calendar years; the Ford figure (see Table 19 above) is for the fiscal year ended July 31.

[4] Cf. annual reports to the Michigan Secretary of State as of October 1, 1908, and October 1, 1909.

3. Beginnings of the General Motors Company

Such had been the brief history and such was the status of the Buick Motor Company when, in the middle of 1908, plans were first broached for a combination of the larger motor-car manufacturers. The first efforts in this direction and some of the factors that provided the impulse for the movement have already been noted.[1] We have observed that the automobile industry during this period was an extremely speculative one: large numbers of small companies, meagerly financed, absorbed the greater part of the market;[2] the tentative technical character of the automobile, real and fancied, made the future of any particular 'make' very uncertain; and even the largest producers possessed so small a margin of liquid capital that a single unpopular model threatened their existence. Combination offered the opportunity of diversifying risks among a variety of automobile products, and of obtaining readier access to investment capital. Thus, as we have seen, four of the largest producers — the Ford, Buick, Reo, and Maxwell-Briscoe enterprises — came within an ace of combining their interests.

Undaunted by the failure of several combination projects which he and Benjamin Briscoe had initiated, Durant, on September 16, 1908, effected the incorporation in New Jersey of the General Motors Company, which obtained a perpetual charter containing a very broad grant of powers. The initial capitalization of $2000 was increased two weeks later to $12,500,000, of which $7,000,000 consisted of seven per cent preferred stock and $5,500,000, of common stock, both classes being of $100 par value. On October 1, 1908, in exchange for 18,870 shares of the common stock of the Buick Motor Company, $500,000 in cash, and an underwriting agreement assuring the sale of $2,000,000 par value

[1] Chapter II, Sections 7, 8, 9.

[2] The combined output of the Ford, Buick, Cadillac, and Olds companies in 1908 was 18,411 (figures from records of General Motors Corporation and from *The Ford Industries*); the total American output was 65,000.

of its preferred stock, the General Motors Company issued to Durant $2,387,000 par value of its preferred and $2,193,500 of its common stock; $1,000,000 of the latter was immediately donated back to the Company for reissue as a fifty per cent bonus with the sale of its preferred stock.[1] The nature of this transaction may be seen from the following itemization:

Issued for 18,870 shares of Buick common:
$1,887,000 General Motors preferred and
$943,500 General Motors common;
Issued for $500,000 cash:
$500,000 General Motors preferred and
$250,000 General Motors common;
Issued for underwriting agreement, and donated back to the Company for reissue as bonus with sale of preferred stock:
$1,000,000 General Motors common.

The remaining capital stock of the Buick Motor Company was acquired on the same day on substantially the same terms (one share of preferred and one-half share of common of General Motors for each share, common or preferred, of the Buick Company). In the months following, partly for cash and partly by exchange of securities, one enterprise after another was brought into the Combination. Within two years after its incorporation, the General Motors Company had acquired a stock interest in more than two dozen different enterprises: these included eleven automobile-producing companies and a variety of parts, accessory, and lamp companies. Most of these interests were acquired piecemeal: Durant's procedure was to come to an arrangement with one or more of the principal stockholders of a company, and to offer similar, though not always identical,

[1] The bulk of the financial and other data here presented was compiled for the writer from the records of the General Motors Corporation by and through the courtesy of Mr. Frank F. Kolbe, assistant treasurer of the Corporation, and his assistants, Messrs. A. Philip Warriner and Howard Chapin, with the generous consent of Messrs. Pierre S. Du Pont, chairman of the board of directors, John J. Raskob, chairman of the finance committee, and Meyer L. Prentis, treasurer.

terms to the remaining stockholders.[1] A list of the acquisitions, the consideration in cash and securities paid for them, and an approximate statement of the net worth of the companies at the time of acquisition, are presented in Table 30, the data for which were compiled from the records of the General Motors Corporation.[2]

Of the car-producing enterprises thus acquired, only three warrant special consideration: the Buick Motor Company, the history of which has been detailed above; the Cadillac Motor Car Company, and the Olds Motor Works.

Next to the Buick, the Cadillac Motor Car Company was the most important acquisition made by the Combination. This company had been incorporated on October 27, 1905, to succeed the Cadillac Automobile Company and the Leland & Faulconer Manufacturing Company, a parts-making enterprise; its entire capital stock, $1,500,000 of common, had been issued for the assets of its predecessors.[3] Its principal stockholders, Clarence A. Black, Lem W. Bowen, William H. Murphy, and W. W. White, had previously supported Henry Ford in the Detroit Automobile Company, and, after Ford's withdrawal, had organized the Cadillac Automobile Company.

The Cadillac automobile had early become popular: its sales in 1904 totaled 2534; in 1905, 3920; in 1906, 4045; in 1907, 2367; in 1908, 2380. On November 12, 1908, Benjamin Briscoe obtained an option on sixty per cent of the Company's stock at $150 a share.[4] This option expired during the progress of Briscoe's negotiations with J. P. Morgan & Co. for the financing of the purchase. Durant, in the mean-

[1] From data given the writer by Mr. Thomas S. Merrill, secretary of the General Motors Corporation.

[2] Except that most of the figures for net worth were obtained from the reports of these companies to the Michigan Secretary of State as of the dates nearest the time of acquisition.

[3] Including $275,000 of 'good-will.' Cf. articles of incorporation filed with the Michigan Secretary of State.

[4] Briscoe, 'The Inside Story of General Motors,' published in the *Detroit Saturday Night* of January 15, 22, 29, and February 5, 1921.

TABLE 30. ACQUISITIONS OF GENERAL MOTORS COMPANY, 1908–10 *

COMPANY [a]	NET WORTH [b]	CONSIDERATION PAID [c]		
		Cash	Preferred	Common
Buick Motor Company	$3,417,142	$1,500	$2,498,500	$1,249,250
Cadillac Motor Car Company	2,862,709	4,400,000	275,000	
Olds Motor Works [d]	2,961,769	17,279	1,827,694	1,195,880
Oakland Motor Car Company	305,523	305,523		
Marquette Motor Car Company	300,000	100	161,200	32,200
Cartercar Company	266,486	2,780	137,700	
Elmore Manufacturing Company [e]	600,000		600,000	
Randolph Motor Car Company	207,400		204,400	
Reliance Motor Truck Company. 15,848 out of 16,575 shares	164,590	111,993		
Rapid Motor Vehicle Company 36,465 out of 50,000 shares	647,563	412,348	51,500	
Weston-Mott Company 2490 out of 5000 shares	199,302	230,000	94,000	47,000
W. T. Stewart Body plant (assets)	160,000		160,000	80,000
Michigan Motor Castings Co. [f] 1650 out of 5000 shares	112,500	37,125		
Northway Motor & Manufacturing Company [g]	212,075	212,075		
Ewing Automobile Company	88,900	37,800	51,100	
Dow Rim Company 700 out of 1000 shares	100,000	41,200	28,800	
Welch Motor Car Company [f] 60 out of 2500 shares	250,000	6,000		
Michigan Auto Parts Company	76,736	76,736		
Jackson-Church-Wilcox Company	122,450	122,450		
Novelty Incandescent Lamp Co. 750 out of 1000 shares	86,668		65,000	
Heany Lamp Companies [h]		112,759	1,111,000	5,908,500
McLaughlin Motor Car Co., Ltd. [i] 5000 out of 10,030 shares				
Champion Ignition Company [i] 750 out of 1000 shares				
Brown-Lipe-Chapin Company [i] 500 out of 7500 shares				
Oak Park Power Company [i] 1330 out of 2000 shares				
	$13,161,813	$6,127,668	$7,268,894	$8,512,830
Stock reacquired (deduct)			1,654,000	581,700
Stock issued to subsidiaries for their disposal (add)			312,400	
			$5,927,294	$7,931,130
Issued for cash ($4,504,306 realized)			4,114,806	1,639,500
Stock dividend (150 per cent)				6,249,200
Total stock issues to September 30, 1910			$10,042,100	$15,819,830

[a] Entire capital stock acquired except as otherwise noted.

[b] Approximate net worth at time of acquisition, as indicated in nearest annual report or by cash and preferred stock issued in payment.

[c] Does not include purchases by subsidiaries; cf. (*f*) and (*i*), below.

[d] Net worth includes patents valued at $626,450, and reflects cancellation of the Company's note liabilities of $1,044,177, held by its president, S. L. Smith, for which the latter received $1,044,174 par value of General Motors preferred stock and $1,000,000 of common stock. This payment is included in the considerations listed as paid for the Company.

[e] The $600,000 of preferred stock paid for this Company was repurchased by the General Motors Company some months later for $709,291 cash, when the Elmore stockholders exercised an option to this effect.

[f] Remaining capital stock acquired by Buick Company and transferred to General Motors.

[g] Note liabilities of $112,075 were canceled as part of the transaction.

[h] The assets of these companies consisted of patent rights later voided; the transaction is discussed in detail below.

[i] Acquired by Buick Company and transferred to General Motors.

* Compiled from the original records in possession of the General Motors Corporation.

time, had offered $160 a share; and, on July 1, 1909, finally obtained a purchase-contract at a price of a little more than $300 a share — $4,400,000 cash and $275,000 par value of General Motors preferred stock.[1]

The Cadillac purchase, in the light of its then-current earnings and of its subsequent history, was exceedingly well advised. For the year ended August 31, 1909, the Company reported earnings of $1,969,382 [2] — the equivalent of a forty-two per cent return on the amount of General Motors' investment; its net worth, after the payment of $675,000 in dividends, was $2,862,709.[3] The willingness of its stockholders to sell out can be explained only by the speculative character of the automobile industry at the time, coupled with the relatively high price offered for the stock as compared with its book value.

The acquisition of the Olds Motor Works, which preceded that of the Cadillac Company, appears, in contrast, to have been a great extravagance. This enterprise had been organized originally as the Olds Motor Vehicle Company in 1896 by Ransom E. Olds, one of the pioneer automobile inventors. In 1899, Olds had procured the financial support of a Detroit capitalist, S. L. Smith; the Company was removed from Lansing to Detroit, and reincorporated as the Olds Motor Works, with a paid-in capital of $200,000. In 1900, its 'Curved-Dash Oldsmobile,' retailing at $650, gave it great prominence, and it promised for a time to become the leading American automobile producer: its output in 1900 was 1400 cars; in 1901, 2100; in 1902, 2500; in 1903, 3000; in 1904, 5508. Its orders for parts initiated into the industry many later-important producers, and its operating organization included so many individuals subsequently prominent in the industry that Olds has been called 'the schoolmaster of the automobile industry.' [4] In 1905, however, as a result of a controversy over the Company's product — Smith's

[1] From the records of the General Motors Corporation.

[2] *Commercial and Financial Chronicle*, vol. 89, p. 1666. [3] *Ibid.*

[4] Doolittle, *Romance of the Automobile Industry*, p. 44.

sons desiring to substitute an expensive automobile for the low-priced car — Olds sold his interest in the Company, and, shortly after, became head of the Reo Motor Car Company, which had been specially organized for him by citizens of Lansing, Michigan. With Olds's departure, the Olds Motor Works went into a decline: in 1905, its output dropped to 2381; in 1906, to 1372; in 1907, to 1045; in 1908, it was 1146. Its balance-sheet on August 1, 1908, showed unsecured liabilities of $1,472,693, gross tangible assets of $2,763,838, and net tangible assets of $1,291,145. On November 12, 1908, the General Motors Company purchased the entire outstanding capital stock (200,000 shares of $10 par value) and $1,044,174 of its note-liabilities (held by S. L. Smith, the Company's president) for $1,827,694 of General Motors preferred stock, $1,195,880 of common, and $17,279 in cash. Durant purchased the Company chiefly for its reputation, according to Mr. A. B. C. Hardy, later its president.[1]

The remaining eight lines of automobiles acquired by the General Motors Company during its first two years were untried or unimportant products, all but one of which, the Oakland, were subsequently abandoned. The Oakland had been in active operation for less than a year;[2] the Marquette had been organized by Durant only in March, 1909;[3] the Reliance had been incorporated only a year earlier;[4] the Cartercar had been purchased because it boasted a 'friction-drive,' and 'maybe friction-drive would be the thing'; the Elmore had been acquired for a similar reason — it produced a two-cycle motor, and 'maybe two-cycles was going to be the thing for automobiles'; the Randolph had only just been incorporated;[5] the Welch Motor Car Company had produced less than a dozen cars;[6] and another

[1] As stated by Mr. Hardy in an interview with the writer.

[2] Incorporated in Michigan on August 28, 1907; 278 cars produced in 1908.

[3] Cf. articles of incorporation, March 16, 1909, Michigan Secretary of State.

[4] On May 19, 1908. [5] In Illinois, on December 11, 1908.

[6] From the records of the General Motors Corporation.

Welch Company, the Welch Company of Detroit (not included in the table of acquisitions because organized and immediately acquired by the General Motors Company in 1909, with negligible expenditure [1]), was, like the others (except the Oakland), soon withdrawn.

The philosophy that motivated the acquisition of this large assortment of motor-car products has already been recited: while the generic demand for automobiles was large, that for any particular 'make' was uncertain; risks could be pooled and minimized by producing a variety of automobile products. Durant's policy was summarized by Mr. A. B. C. Hardy, who had been intimately associated with him, as follows: [2]

> Durant bought a lot of different companies, most of which were not much good; but he paid for them largely in stock. He didn't want the actual assets of these companies; most of them were head over heels in debt, anyway. He wanted to have a lot of 'makes,' so that he would always be sure to have some popular cars. I heard him explain this one day in this way:
>
> 'They say I shouldn't have bought Cartercar,' he said. 'Well, how was any one to know that Cartercar wasn't to be the thing? It had the friction drive and no other car had it. How could I tell what these engineers would say next? Maybe friction drive would be the thing. And then there's Elmore, with its two-cycle engine. That's the kind they were using on motor-boats; maybe two-cycles was going to be the thing for automobiles. I was for getting every kind of car in sight, playing safe all along the line.'

In addition to the car-producers actually acquired and to the various parts-making enterprises purchased, the General Motors Company, as we have noted, made a serious attempt to acquire the Ford Motor Company and the Maxwell-Briscoe Motor Company. Mention has been made of the option obtained by Durant from the Ford Motor Company following the latter's reverse in the Selden patent decision of

[1] Incorporated in Michigan on July 10, 1909; annual report as of December 31, 1909, showed total assets of $104,262 and liabilities of $148,505.

[2] In an interview with the writer in Lansing, Michigan, December 24, 1924. Quotation transcribed from the writer's notes.

1909 — an option that Durant failed to exercise only because he could not procure the funds necessary for the initial payment. The projected acquisition of the Maxwell-Briscoe Company failed for the same reason. A memorandum dated July 19, 1909, provided for the purchase through exchange of securities of the Maxwell-Briscoe Company at a valuation of $3,500,000; and of the Brush Runabout Company and the Briscoe Manufacturing Company, valued at $100,000 and $460,000, respectively.[1] 'But, through the taking in of the Heany companies at about that time' (to be discussed below) 'we were to "sweeten" the operation so that Maxwell-Briscoe would have gotten about $5,000,000 of stock in the combination.'[2] Briscoe tried to obtain the consent of the Morgan interests, who had financed his operations, to this transaction, but was told that a substantial cash payment, approximating $2,000,000, would be necessary to obtain their consent.

4. Stock-Watering: The Heany Lamp Companies

The acquisitions of the General Motors Company recited in the foregoing were frequently consummated informally and antedated formal authorization by the board of directors. This fact, coupled with the relatively large amounts of stock issued for several of the smaller companies, opens the door to a suspicion that several of the transactions were made occasions for the unofficial distribution of 'promotion stock' to individuals associated with the management of the parent company. It is difficult, of course, to obtain authoritative comment or official data in corroboration of this inference. In the case of the Heany Lamp companies, however, the facts themselves, and the remark of Mr. Briscoe, quoted above, that the Heany transaction made it permissible to 'sweeten' the consideration to be paid for the Maxwell-Briscoe properties, crystallize such a suspicion. The facts were substantially as follows:[3]

[1] Briscoe, 'The Inside Story of General Motors,' *loc. cit.* [2] *Ibid.*

[3] From the *Official Gazette* of the United States Patent Office, p. 934 ff., and the records of the General Motors Corporation.

John Albert Heany, on December 29, 1904, filed application for a patent on an improved electric lamp bulb; and on August 1, 1906, and November 19, 1906, filed additional applications, alleging that these were revisions of his original ones and therefore entitled to the original dating. Heany was granted the patent in 1907, and shortly after became involved in litigation with rival claimants who had assigned their rights to the General Electric Company. In the fall of 1907, Heany, his attorney, H. E. Everding, and a patent-office clerk, Ned W. Barton, were charged with altering the original application to permit the later ones to be classed as revisions: Barton and Everding were found guilty in federal court and were sentenced to prison; Heany was acquitted. The latter, in the meantime, had organized the Heany Company, the Heany Lamp Company, the Heany Electric Company, and the Tipless Lamp Company, to which he had assigned his patent rights. The stocks of these companies were acquired by the General Motors Company on January 4, 1910, in return for $1,111,000 of General Motors preferred stock, $5,908,500 of its common stock, and $112,759 in cash.[1] Since the principal assets of the Heany companies consisted of cloudy patent rights, which were later voided by the United States Commissioner of Patents, the General Motors Company received a negligible consideration for a volume of securities greater than it had issued for any automobile enterprise and greater than its payment for the Buick and Olds Companies together. On September 30, 1910, its holdings in the Heany companies were transferred on its books to 'good-will,' and, a little later, they were written off the books entirely.[2]

It is not a little striking to record that on October 1, 1927, the securities issued for the Heany companies (as multiplied by stock dividends) had a market value in excess of $320,000,000; that, by this date, more than $50,000,000 in cash dividends had been paid on them; and

[1] See Table 30, above.

[2] From the records of the General Motors Corporation.

that they now command annual dividends in excess of $10,000,000.

5. Financing Acquisitions and Operations

On September 30, 1910, the General Motors Company had outstanding (exclusive of treasury holdings of the parent and subsidiary companies) $10,042,100 par value of preferred stock and $15,819,830 of common stock. The authorized capitalization of the Company had been increased on September 15, 1909, to $40,000,000 of common and $20,000,000 of preferred; and on November 15, 1909, a stock dividend of 150 per cent, aggregating $6,249,200 par value of common stock, had been declared. The origins of the stock issues of the Company up to September 30, 1910, and its capital receipts and expenditures, may be summarized as follows:[1]

	Cash	Preferred	Common
Issued for motor-car properties	$6,014,909	$6,157,894	$2,604,330
Issued for cash and underwriting agreement (from which a total of $4,504,306 was realized)		4,114,806	1,639,500
Issued for the Heany Lamp companies	112,759	1,111,000	5,908,500
Issued to subsidiaries and by them reissued		312,400	
Stock dividend on common stock			6,249,200
Deduct because reacquired		1,654,000	581,700
Total securities issued and cash paid	$6,127,668	$10,042,100	$15,819,830

It will be seen at once that, while the Company paid out in excess of $6,000,000 in cash for its acquisitions, its receipts of cash from the sale of securities only slightly exceeded $4,500,000. The current earnings of its constituents, particularly of the Buick Motor Company, and the proceeds of loans negotiated chiefly in the latter's name, provided the Combination with the remainder of the capital funds required. Thus, the Cadillac purchase was originally made by the Buick company, the latter procuring the funds by dis-

[1] From the records of the General Motors Corporation.

counting its short-term notes, secured by the Cadillac stock as collateral, with various commercial banks.[1]

The capital requirements of the General Motors Company were not limited, however, to the provision of funds for the direct acquisition of properties. The purpose of the Combination required the production of the full line of motor vehicles it had acquired. Most of the constituents, however, were small and untried enterprises, badly in need of equipment and of inventories; and many of them were in debt. In the attempt to develop all of its lines of motor vehicles, the Combination, in the year ended September 30, 1910, during which few important acquisitions were made, increased its investment in fixed plant from $6,078,447 to $14,094,906; and the book value of its inventories rose from $8,520,920 to $39,802,483.[2]

Fortunately, the earnings of 1909 and 1910 were very large: net profits applicable to capital stock of the General Motors Company totaled $9,114,498 in 1909 and $10,225,-367 in 1910, of which only $1,060,568 had been paid out in dividends during the two years. But the operations of the Combination had expanded rapidly in its second year, the financial volume of sales rising from $29,029,875 in 1909 to $49,430,179 in 1910;[3] and the increased volume of business accentuated the inadequate provision in the financial plan for liquid capital. In consequence, despite its large current earnings, the General Motors Company and its subsidiaries became more and more heavily indebted to suppliers and to commercial banks. To further aggravate the situation, the sales of the Buick Motor Company, the bulwark of the Combination, began to fall below the scheduled volume in the summer of 1910, adding the commitments of this company to those of the smaller enterprises.[4]

[1] Cf. *Commercial and Financial Chronicle*, vol. 89, p. 228; from the records of the Corporation.

[2] Cf. annual reports of General Motors Company for 1909 and 1910.

[3] *Ibid.*

[4] Sales of the Buick company totaled 20,758 cars for the year as

The immediate solution of the difficulties of the Combination seemed to lie in the sale of securities for cash. The times, however, were not propitious for the sale of automobile company stocks. In 1910, bankers and others, in magazine articles and in public addresses, were pronouncing frequent warnings against the continuing growth of the automobile industry. A common assertion was that the industry was diverting the productive resources of the country into unproductive channels. The industry was charged with being responsible for the then-prevailing stagnation in the bond market by absorbing funds which would otherwise be invested in securities; with reducing the average size of bank accounts; and with other evil influences.[1]

Late in August, 1910, with a view, possibly, to facilitate the sale of common stock by increasing the number of shares and thus reducing the market price per share, William C. Durant, chairman of the executive committee, announced a plan for increasing the capitalization of the Company and distributing a stock dividend of 400 per cent.[2] Before this plan could be put into effect, however, the merchandise and bank creditors of the Buick Motor Company (the name and credit of which were largely employed by the parent concern for the requirements of the entire Combination) met in New York to determine upon a common policy.[3] The bank indebtedness of the Buick company was found to total approximately $2,700,000, and its indebtedness to merchandise creditors, between $4,000,000 and $5,000,000. A general committee of creditors was appointed for the purpose of effecting 'a reorganization of the management and a restriction of enthusiasm'; and arrangements were made to extend

against a scheduled volume of 30,000, most of the decline falling in the summer of 1910. From the records of the Corporation.

[1] Cf. particularly an article by Franklin Escher (recently a lecturer on foreign exchange at New York University), entitled 'The Auto and the Bond Market,' in the *Bankers' Magazine*, vol. 81, p. 508 ff. (October, 1910); cf. also, Briscoe, *loc. cit.*

[2] *Commercial and Financial Chronicle*, vol. 90, p. 592.

[3] Cf. *Commercial and Financial Chronicle*, vol. 90, p. 719.

a credit of one year, and to advance $2,500,000 on new notes secured by the capital stocks of the Olds and Cadillac companies.[1]

6. Funding of General Motors' Indebtedness

The General Motors Company had no sooner completed arrangements for temporary financial relief than steps were taken to fund the Company's indebtedness and to supply it with additional working capital. Late in September, 1910, negotiations were concluded with a syndicate headed by Lee, Higginson & Co., of Boston, and J. & W. Seligman & Co., and the Central Trust Company, of New York, for the underwriting of $15,000,000 (of a total authorized issue of $20,000,000) six per cent sinking fund, five-year notes, dated October 1, 1910, and redeemable on any interest date at 102½. The plan for the issue of the notes, secured by a deed of trust, and protected by the deposit of a majority of the outstanding preferred and common stock of the General Motors Company under a voting-trust agreement, was formally adopted by the Company's board of directors on November 11, 1910. How thoroughly the provisions of the deed of trust protected the note-holders may be seen from a survey of its principal elements.[2]

1. The real estate, plants, patents and other fixed assets of the Buick, Cadillac, Olds, Oakland, Elmore, Northway, Marquette, Rapid, Reliance, Welch of Detroit, Welch Motor, Champion Ignition, Jackson-Church-Wilcox, Michigan Motor Castings, and Oak Park Power companies were transferred to the General Motors Company *of Michigan*, theretofore the holder merely of some pieces of idle real estate in the city of Detroit; and this company issued $13,300,000 of First Mortgage, six per cent five-year notes, secured by a first mortgage on all the property it then owned or would afterwards acquire, to the Central Trust Company, as trustee; these notes being pledged as part of the security of the notes issued by the parent company.

2. The General Motors Company (New Jersey) pledged all its

[1] Cf. *Commercial and Financial Chronicle*, vol. 90, p. 719.

[2] From the listing application of General Motors Company to the New York Stock Exchange, June 22, 1911.

holdings in subsidiary companies directly connected with the manufacture of motor cars and parts (constituting substantially all of its assets, except for the stocks of the Heany Lamp companies and its small holdings in Brown-Lipe-Chapin Company); and agreed that any evidences of indebtedness issued by any subsidiary, a majority of whose stock was pledged, other than those issued for current operating expenses, would be acquired by the parent company; that none of such subsidiaries would issue stock having preference over that pledged; and that if any company, stock of which was pledged, increased the amount of its capital stock, the General Motors Company would acquire and pledge the amount of the increase proportionate to its pledged holdings.

3. The General Motors Company agreed that while any of the notes were outstanding, the Company would not distribute in cash dividends on its common stock more than one-half of the net profits subsequent to October 1, 1910, applicable to such dividends; and that it would maintain net quick assets equal to at least 133⅓ per cent of the amount of notes outstanding plus an amount equal to the total cash dividends, if any, paid on the common stock.

4. The sinking fund provisions called for the annual cash payment to the trustee, on or before October 1 of each year, of the following amounts: 1911, $1,500,000; 1912, $1,500,000; 1913, $2,000,000; 1914, $2,000,000; and the balance at maturity.

Under the voting-trust agreement, a majority of the preferred and common stock of the General Motors Company was deposited with a board of five members, three of whom represented the underwriting syndicate. The members of this board were: James N. Wallace, of the Central Trust Company; Frederick Strauss, of J. & W. Seligman & Co.; James J. Storrow, of Lee, Higginson & Co.; William C. Durant, vice-president of the General Motors Company; and Anthony N. Brady, a large stockholder.

The stringent terms exacted by the banking syndicate for the underwriting of this note-issue offer abundant testimony of the uncertain, speculative character of the automobile industry, in the opinion of bankers and investors, at this period. Within the industry, the General Motors Company possessed excellent prospects: its constituents, together, constituted the largest single producer of automobiles in the country — their net sales in the year just then ended had

exceeded $49,000,000; their business did not require the extension of long credits to purchasers or the maintenance of large inventories of finished goods; the net profits of the Combination had exceeded $19,000,000 in the two years of its existence; and the demand for its products appeared to be increasing.

The General Motors Company received about $12,500,000 in cash for its $15,000,000 of notes.[1] In addition to the cash discount, the bankers received a bonus of $5,169,200 par value of the Corporation's preferred stock.[2] By arrangement with several of the large common stockholders, much of this preferred was exchanged for common stock in order to permit the bankers to offer a bonus of the latter with the notes.[3] Voting-trust certificates for the preferred stock ranged in price on the New York Stock Exchange between $86.625 and $74.50 a share during 1911. At the lowest market price during 1911, the preferred stock bonus given the bankers had a cash value of $3,851,054.

In view of the speculative character of the automobile industry in 1910, the terms imposed by the bankers (the voting-trust agreement gave them complete control of the board of directors and its principal committees, to which they elected themselves and individuals affiliated with them shortly after the issue of the notes) are believed in some quarters to have been fully warranted, and their assistance has been characterized as courageous and liberal.[4] Little difficulty appears to have been experienced, nevertheless, in

[1] Cf. *Wall Street Journal* of September 9, 1910, and Briscoe, *loc. cit.* The former, referring to the preliminary negotiations, names $85 as the issue price to the bankers; Mr. Briscoe, who declares that he was called upon to examine the financial statement of the General Motors Company in advance of the financing, states that the corporation received 'about $12,000,000.'

[2] From data compiled from the records of the General Motors Corporation for the present writer by, and through the courtesy of, Mr. Frank F. Kolbe, assistant treasurer.

[3] *Ibid.*

[4] Cf. Doolittle, *Romance of the Automobile Industry*, p. 294.

the disposition of the note-issue. On October 18, 1910, a Boston financial publication declared:[1]

> Private subscriptions have been coming in so rapidly to the $15,000,000 First Lien Five-Year General Motors notes that it seems doubtful whether there will be any public issue or any chance for the general public to subscribe. Applications have already been received . . . for more than a majority of the notes. We understand that these applications are based on 96 and interest for the notes, with a 20 per cent stock bonus. The common stock has been dealt in on the New York Curb at 40 to 45 these last two or three weeks. . . .

In November, 1910, the bankers announced that all of the notes had been sold in advance of public offering.

7. Régime of the Bankers' Control

The condensed consolidated balance-sheet of the General Motors Company and its subsidiary companies on October 1, 1910, immediately after the new financing, was as follows:[2]

Assets

Fixed assets:		
Real estate, plants and equipment		$14,094,909.55
Patents, agreements, etc.		1,959,416.30
Miscellaneous investments		408,944.07
Current and working assets:		
Cash in banks and on hand	$15,000,473.66	
Notes and accounts receivable	4,090,028.81	
Deferred charges	107,302.16	
Inventories	19,802,483.27	
		39,000,287.90
Good-will, representing excess of appraised value over book value of stocks of subsidiary companies owned		14,853,855.91
		$70,317,413.73

[1] *Boston News Bureau.*

[2] Excluding companies unconnected with motor-car manufacture — the Heany Lamp companies, principally. From listing application of General Motors Company to the New York Stock Exchange, June 22, 1911.

LIABILITIES

Capital stock:		
Preferred stock (authorized $20,000,000) issued	$18,038,400.00	
Less in treasury of General Motors Company, $1,882,000		
Less in treasuries of subsidiary companies, $1,693,100	3,575,100.00	
		$14,463,300.00
Common stock (authorized $40,000,000) issued	$19,874,030.00	
Less in treasury of General Motors Company, $3,730,500		
Less in treasuries of subsidiary companies, $318,500	4,049,000.00	
		$15,825,030.00
First lien six per cent five-year sinking fund gold notes		15,000,000.00
Outstanding capital stock (par value) and surplus of subsidiary companies, being the portion not owned by the General Motors Company		
Capital stock	$1,495,520.00	
Surplus	724,341.40	
		2,219,861.40
Current liabilities:		
Notes and accounts payable	14,089,016.25	
Mortgages payable	180,500.00	
		14,269,516.25
Reserves		7,189,917.01
Surplus		1,349,789.07
		$70,317,413.73

Examination of the affairs of the Company by a firm of chartered accountants resulted in a report, issued November 14, 1910, but applicable as of September 30, 1910, declaring that the Company's net equities in its subsidiaries, exclusive of allowances for patents, good-will, agreements, etc., and exclusive of 'other investments which are carried at a book value of $7,663,940,' [1] were valued at $37,770,363; and that, after all bank loans and other maturing obligations had been met, the Company would have a cash balance of ap-

[1] Consisting principally of the stocks of the Heany Lamp companies.

proximately $3,000,000 from the proceeds of its note-issue.[1]

The immediate direction of the Company was placed in the hands of a finance committee chosen from members of the board of directors. Of the eleven lines of motor vehicles only four were continued intact (the Buick, Cadillac, Olds, and Oakland); three were consolidated into a single unit, the General Motors Truck Company; and the remainder were soon discontinued. Freed from its temporary financial embarrassment, the Company soon began to enjoy untroubled prosperity. On November 12, 1910, the board of directors voted the regular three and one-half per cent dividend on preferred stock, due October 1, but payment of which had been postponed. On March 3, 1911, a circular letter issued by Lee, Higginson & Co. declared that the plants of the Company were in full operation; that the earnings of two of the smaller subsidiaries, the Elmore and Northway companies, were exceeding those of the preceding year, when their earnings alone would have been adequate to meet the interest requirements of the outstanding note-issue; and that $500,000 had already been paid into the sinking fund for the purchase of notes in the open market.[2]

An ambitious program of plant expansion and of acquisition by purchase, financed and to be financed largely through the current earnings of its subsidiaries, had brought the Company into the bankers' hands. With the advent of the voting trust, a conservative administrative policy was adopted; and the financial affairs of the Company soon reflected the unusually favorable conditions, as respects fixed and working capital requirements, experienced by virtually all American automobile producers. During the five years of the bankers' control, dividends on preferred stock were paid regularly, though no disbursements were made to the common stockholders; and earnings aggregating more than

[1] Marwick, Mitchell & Co., quoted in the *Commercial and Financial Chronicle*, vol. 91, p. 1576.

[2] Letter quoted in the *Commercial and Financial Chronicle*, vol. 92, p. 264.

$30,000,000 were reinvested in the business. Substantial additions were made to the plants of subsidiaries, and the Company had no difficulty in regularly anticipating the sinking-fund requirements of its note-issue. In addition to current charges for depreciation, the plant and inventory valuations of 1910 were reduced by $9,960,000 by charges against the growing surplus; and the book value of the Company's intangible assets, which had totaled $16,813,272 in 1910, was reduced to $8,347,698.[1] In 1915, the Company was able to redeem the last of its outstanding notes and to carry on a greatly augmented volume of business without any borrowing whatever from commercial banks.[2] Some of the results of the Company's operations during the five years of the bankers' control and during the two years preceding are summarized in Table 31; and the comparative balance-sheets of 1910 and 1915, which, however, must be interpreted in the light of the heavy deflationary hand of the bankers on the valuation accounts during the intervening period, are presented on the page following.

TABLE 31. OUTPUT, SALES, PROFITS, AND REINVESTED EARNINGS OF THE GENERAL MOTORS COMPANY, 1909–15 *

YEAR ENDED	OUTPUT	SALES	NET PROFITS	EARNINGS REINVESTED
Sept. 30, 1909	30,981	$29,029,875	$9,114,498	$8,696,877
Sept. 30, 1910	39,300	49,430,179	10,225,367	9,582,420
July 31, 1911 [a]	35,752	42,733,303	4,066,251	2,474,177
July 31, 1912	49,538	64,744,496	4,746,756	2,856,082
July 31, 1913	46,719	85,603,920	8,184,053	6,410,937
July 31, 1914	58,987	85,373,303	7,819,968	6,201,055
July 31, 1915	76,068	94,424,841	14,794,191	13,408,839

[a] Ten months.

* From the records of the General Motors Corporation. Sales figures are exclusive of intercompany transactions; net profits represent net profits on operations after deductions for taxes, interest on short-term indebtedness, and normal depreciation charges, but before 'write-offs' applicable to previous years and before deduction of interest paid on funded debt. The profit figures for 1909 and 1910 are probably exaggerated to some extent.

[1] Cf. annual reports of the General Motors Company, 1911 to 1915, inclusive.

[2] See report for 1915.

CONSOLIDATED BALANCE-SHEETS OF OCTOBER 1, 1910, AND JULY 31, 1915

ASSETS

	1910	1915
Real estate, plant, equipment	$14,094,909.55	$15,819,851.85 [a]
Patents, agreements, etc.	1,959,416.30	413,500.00
Miscellaneous investments	408,944.07	367,184.50
Cash in hand and in banks	15,000,473.66	14,526,124.14
Marketable securities		1,001,000.00
Notes and accounts receivable	4,090,028.81	3,944,680.75
Deferred charges	107,302.16	
Inventories	19,802,483.27	14,049,298.15
Prepaid expenses		533,585.97
Good-will, representing excess of appraised value over book value of stocks of subsidiary companies owned	14,853,855.91	7,934,198.14
	$70,317,413.73	$58,589,423.50

LIABILITIES

Preferred stock (authorized $20,000,000) net outstanding	$14,463,300.00 [b]	$14,985,200.00 [b]
Common stock (authorized $40,000,000) net outstanding	15,825,030.00 [b]	16,506,783.05 [b]
First lien six per cent sinking-fund five-year gold notes	15,000,000.00	2,328,000.00
Outstanding capital stock and surplus of subsidiary companies, being portion not owned by General Motors Company	2,219,861.40 [c]	982,423.14 [c]
Notes payable and accounts payable	14,089,016.25	1,380,907.94 [d]
Mortgages payable	180,500.00	
Accruals		1,270,302.43
Reserve for preferred dividend		262,241.00
Reserve for sundry contingencies		888,406.00
Reserves	7,189,917.01	
Surplus	1,349,789.07	19,985,159.94
	$70,317,413.73	$58,589,423.50

[a] Net, after deducting $6,933,570.68 reserve for depreciation.

[b] Excluding stock held in treasury of parent company and subsidiaries: 1910, parent company held $1,882,000 preferred and $3,730,500 common, and subsidiaries held $1,693,100 preferred and $318,500 common; 1915, parent company held $3,053,200 preferred and $3,367,246.95 common.

[c] 1910, capital stock (par value), $1,495,520.00; surplus, $724,341.40; 1915, capital stock (par value), $528,000.00; surplus, $454,423.14.

[d] Accounts payable only.

The substantial achievements of the voting trust, particularly as respects financial management, are generally conceded. As respects industrial expansion, however, the facts suggest that the Company might have fared better in the hands of an administration less wedded to conservatism. The period of the bankers' control was one of tremendous growth in the automobile industry: the aggregate American output rose from 187,000 vehicles valued at $225,000,000 in 1910 to 969,930 vehicles valued at $701,778,000 in 1915.[1] The General Motors enterprises had contributed about 21 per cent of the total physical output and about 22 per cent of the wholesale value in 1910; by 1915, their combined share had fallen to about 7.8 per cent of the physical output and to about 13.3 per cent of the total wholesale value. One of the operating vice-presidents of the General Motors Corporation, speaking informally in an interview with the present writer, declared:[2]

> The bankers were too skeptical about the future of the automobile industry. They were chiefly interested in trying to realize savings, so they closed down some plants, concentrating in others. They didn't take advantage of the opportunities. Under Durant, the Company might have had a little financial difficulty now and then, but it would have grown much faster and its earnings would have been much greater.

As the final year of the voting trust drew to a close, the board of directors, in announcing the first cash dividend to be distributed to the common stockholders of the Company — a dividend of fifty per cent — declared:[3]

> The common stock has never received a cash dividend since the company was organized on September 16, 1908.
>
> Your directors have followed the policy of building up the cash assets and credit of the company and have so accumulated and held large cash balances pending the maturity of the six per cent notes, the original issue of which was $15,000,000, and the last of which will be paid October 1, next. . . .

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[1] *Facts and Figures of the Automobile Industry*, 1927.

[2] Name withheld by request.

[3] Annual report of General Motors Company for 1915.

Your board does not believe in running into debt; hence one million dollars has been invested in short-time securities against probable extensions.

The large write-offs amounting to $12,531,013.19, required during the past five years to bring your plants, machinery, merchandise, and other assets down to a conservative figure are now, we believe, at an end. . . .

From the balance of cash available your directors have to-day declared a dividend of 50 per cent on the Common Stock, being $50 per share, payable October 15, 1915, to stockholders of record at the close of business, September 10, 1915.

8. Reaccession of William C. Durant: The Chevrolet Motor Company

During the régime of the bankers' control, William C. Durant, erstwhile promoter of the General Motors Company and chairman of its executive committee, had played a passive rôle in the administration of the enterprise. Though a member of the board of voting trustees, he had transferred his energies, shortly after the accession of the bankers, to the organization of a new automobile enterprise, the Chevrolet Motor Company. This enterprise, incorporated in Michigan on November 6, 1911, acquired a small automobile factory operated by William H. Little, and started manufacture of an automobile designed principally by Louis Chevrolet, a well-known racing pilot. In 1913, soon after production in commercial volume was under way, Durant and his associates obtained control of the Republic Motor Company, of Tarrytown, New York, and, after changing its name to the Chevrolet Motor Company of New York, Inc., operated the Tarrytown factory as an assembly plant for Chevrolet vehicles, most of the parts being purchased from parts-makers.[1] The Chevrolet automobile struck the public fancy: output in the two years ended August 14, 1915, totaled 15,919 vehicles; net sales, $11,707,954; and net profits, $1,305,784;[2]

[1] Cf. listing application of General Motors Corporation to the New York Stock Exchange, January 20, 1919.

[2] *Ibid.*

and a number of associated Chevrolet enterprises were soon organized in various cities.

Durant's ulterior object in establishing a New York Chevrolet factory was that of interesting Eastern capitalists in his automobile projects, and, possibly, of procuring the support of some of them in an attempt to regain control of the General Motors Company, according to one of his associates, who declared:[1]

> The automobile business was foreign to these Eastern bankers. They wouldn't come all the way out to Michigan to see what the industry was doing. With a factory at Tarrytown, we thought that they could run up and see it; and even if it were only an assembling plant, they would be impressed by seeing the actual automobiles being turned out. That was Durant's object in this Tarrytown factory — to get a few of them interested in his operations.

Durant evidently succeeded fully in this object. As the expiration of the voting trust drew near, great activity was displayed in the New York stock market by the voting-trust certificates for the common and preferred stocks of the Company. Trading in these securities — the first stocks of any automobile enterprise to be listed on the Exchange[2] — had been relatively light for the first three or four years, and fluctuations in the price of the common stock, while substantial, had not been exceptional: between 1911 and the beginning of 1915, the 'low' price had ranged between 25 and 37.37, and the 'high,' between 40 and 99.[3] Early in 1915, however, Durant and his new supporters — principally, Pierre S. Du Pont, of E. I. Du Pont de Nemours & Co., and Louis G. Kaufman, president of the Chatham & Phœnix National Bank, New York — began to purchase General Motors common stock in the open market,[4] and a startling ascent in its price was

[1] Mr. A. B. C. Hardy, long associated with Durant, and later vice-president of the General Motors Corporation, in an interview with the present writer in Lansing, Michigan, December 24, 1924.

[2] Listed on July 31, 1911. The first lien notes had been listed on June 28, 1911.

[3] Cf. summaries of *Commercial and Financial Chronicle.*

[4] From information given the writer by Mr. A. B. C. Hardy.

soon under way: on January 2, 1915, the closing price of the stock was 82; by December 9, 1915, it reached a 'high' of 558. On October 1, 1915, in the meantime, when the voting trust expired, Durant and his associates controlled enough stock to elect nearly a clear majority of the board of directors; and the chairmanship of the board went to Pierre S. Du Pont, Durant's chief supporter.

In order to place his tenuous, but effective, control of General Motors on a surer basis, Durant proceeded to effect a reorganization of his Chevrolet enterprises. The latter had been established without public financing, most of their securities having been issued for property and services.[1] On September 23, 1915, Durant organized the Chevrolet Motor Company of Delaware; on October 21, $13,200,000 par value of the authorized capital stock ($20,000,000, all common, of $100 par value) was exchanged for the stocks of the Michigan and New York Chevrolet companies and of several small enterprises; and $6,800,000 par value was offered to the public through an underwriting syndicate headed by Hornblower & Weeks.[2] This firm announced that the management of the Chevrolet Motor Company (Delaware) was identified with that of the General Motors Company; that its product was to be a new low-priced passenger car; that the current earnings of the constituent companies were at the rate of $2,000,000 a year; and that the purpose of the public offering was to provide funds for increasing the output from 100 to 300 cars a day.[3] The association of Durant's name with the enterprise led numerous motor-car dealers and General Motors stockholders to subscribe to the new stock;[4]

[1] The original capitalization of the Chevrolet Motor Company of Michigan, the parent and most important of the group, was $100,000; this was increased, a month after the incorporation, to $2,500,000 (all common stock), of which $316,900 was listed as issued for cash; on June 18, 1913, $500,000 of the common stock was converted into seven per cent cumulative full-voting preferred stock; and on this date, $999,500 of the common stock was listed as issued. Cf. articles of incorporation and amendments as filed with the Michigan Secretary of State.

[2] Cf. *Commercial and Financial Chronicle*, vol. 101, p. 1094.

[3] *Ibid.*

[4] From information given the writer by Mr. A. B. C. Hardy.

and on October 1, before the issue had been formally authorized, the underwriting syndicate announced that the subscription books had been closed, applications for the stock having exceeded ten times the amount offered.[1] The public sale was at $85 a share,[2] the price to the underwriters, about $65;[3] and, soon after the books were closed, the stock sold on the New York Curb market at $97 a share.

No sooner had this reorganization and financing been completed than Durant approached a number of the larger stockholders of the General Motors Company, many of whom had been associated with him in its original promotion, and offered to exchange stock in the Chevrolet Motor Company (Delaware) for their holdings of General Motors at the rate of five shares of the former for each share of the latter.[4] The response to this offer was evidently adequate, for on December 23, 1915, the stockholders of the Chevrolet Motor Company voted to increase the authorized capital stock from $20,000,000 to $80,000,000 (all common); and authorized the board of directors to issue the additional stock as the latter saw fit, specifically empowering them to issue Chevrolet stock for General Motors common stock at a ratio not greater than five to one.[5] Durant and his associates exchanged a large portion of their General Motors holdings at this rate; and a public offering of Chevrolet stock on a similar basis met with sufficient response to warrant a closing of the offering on January 25, 1916.[6]

The evident plan of the Chevrolet Motor Company to acquire control of the General Motors Company met with the opposition of a number of the directors of the latter company; and in January, 1916, a circular letter, signed by eight mem-

[1] Cf. announcement of Hornblower & Weeks, quoted in the *Commercial and Financial Chronicle*, vol. 101, p. 1094.

[2] *New York Times Annalist*, vol. 7, p. 51 (January 10, 1916).

[3] Cf. listing application of General Motors Corporation to the New York Stock Exchange, January 20, 1919.

[4] From information given the writer by Mr. A. B. C. Hardy.

[5] *Commercial and Financial Chronicle*, vol. 101, p. 2147.

[6] *Ibid.*, vol. 102, p. 439.

bers of the board of directors of the General Motors Company, was addressed to the latter's stockholders, proposing a new voting trust of three years, and inviting the coöperation of the stockholders. The letter read as follows:[1]

The undersigned directors have received many inquiries in regard to current reports that the control of the General Motors Company was about to be acquired by another company, and asking information in the premises.

Under the circumstances, they would state that no one of the undersigned is a party to any arrangement looking to the vesting of control of the General Motors Company in any other corporation.

We believe that the results achieved with President Nash at the head of the Company have been satisfactory to the stockholders. It has been suggested by some shareholders that it would be well to form a three-year voting trust beginning November, 1916, at which date the term of the present board of directors expires. The majority of the present board of directors favors this plan. With a sufficient number of stockholders wishing to unite in forming this voting trust, action to that end will be taken.

The slip enclosed, on which the shareholders may express their wish for a voting trust of five members of the present board acting as trustees, to be selected by the present board of directors, should be returned at once to Standish Backus, Secretary of the General Motors Company, Detroit, Mich.

The document was signed by Samuel F. Pryer, Albert H. Wiggin, Thomas Neal, Charles H. Sabin, J. J. Storrow, C. S. Mott, Albert Strauss, and Emory Clark.

The response to the letter was probably slight, for on March 18, 1916, another appeal was addressed to the General Motors stockholders, this time signed by thirteen stockholders 'unconnected with the management.'[2] Among other things, the writers declared:

Granting that the present effort to vest control of the General Motors Company in the Chevrolet Motor Company has not succeeded, it is quite possible that a renewed effort in this direction will be made or that an attempt may be made to change the control by some other method. . . .

We do not believe that control by the Chevrolet Motor Company

[1] Quoted in the *Commercial and Financial Chronicle*, vol. 102, p. 157.

[2] *Ibid.*, vol. 102, p. 1063.

would result in any improvement in the management. The following have consented to act (as trustees of the three-year Voting Trust proposed): C. W. Nash, E. W. Clark, C. S. Mott, C. H. Sabin, J. J. Storrow, and Albert Strauss.

This appeal, as the preceding one, bore little fruit; and the evident strength of the Durant support is believed to have caused a number of the large stockholding interests to dispose of their holdings, thus facilitating the attainment of Durant's objective. Mr. Pierre S. Du Pont, in answer to some queries addressed to him by the present writer, declared:[1]

> The purchase of General Motors stock (and afterward its exchange in part for Chevrolet Motor Company stock) by the E. I. Du Pont de Nemours & Company undoubtedly had an influence on Mr. Durant's control of General Motors Corporation, as the relations of the Du Pont Company with Mr. Durant were always cordial and coöperative. However, I believe that the sale of stock by interests that might otherwise have been adverse to Mr. Durant, had a greater influence in strengthening the latter's control. I do not believe that the Du Pont Company and Mr. Durant ever had an actual majority of shares, but they, together with their following, that is, investors who were willing to trust the management of the company to them, undoubtedly represented the large majority.

Ten weeks after the issue of the second appeal for the formation of a voting trust, William C. Durant, president of the Chevrolet Motor Company, succeeded Charles W. Nash as president of the General Motors Company; and a short time later, James J. Storrow, Emory W. Clark, and Albert Strauss resigned from the board of directors. The Chevrolet Motor Company had acquired a clear majority of General Motors common stock![2]

9. Formation of the General Motors Corporation

With Durant once more in control, the General Motors Company again pursued a policy of vigorous expansion. The

[1] In a letter dated March 10, 1925.

[2] Cf. annual report of Chevrolet Motor Company (Delaware) for 1916. Included among the assets as of December 31, 1916, were 450,000 shares of General Motors common stock; the outstanding total of the latter

year ended July 31, 1916, was one of striking increases in output, sales, and profits, as may be seen from the following summary:[1]

	Output	Sales	Net Profits
1915.....	76,069	$94,424,841	$14,794,191
1916.....	132,088	156,900,296	28,812,288

After distributing $11,779,123 in dividends, the Company ended the fiscal year with a net addition of $17,010,437 to its surplus account, and with a cash balance of $22,476,575. Its earnings applicable to common stock had exceeded 168 per cent of the par value of the latter, and, in consequence, the market value of the common stock reached new heights.[2] On August 31, 1916, in order, among other things, 'to afford the present stockholders a more liquid and satisfactory investment,' the board of directors voted to readjust the capitalization of the Company.[3] On September 16, 1916, it was announced that a plan for the formation of a new company had received the approval of a majority of the stockholders, and would go into effect on November 1.

The General Motors Corporation was incorporated in Delaware on October 13, 1916, and acquired the capital stock of the General Motors Company (New Jersey) on the following terms: one and one-third shares of the six per cent preferred stock of the new company were exchanged for each share of seven per cent preferred of the old (a total of 199,803 of the new for 149,582 of the old); and five shares of the new company's common stock were exchanged for each common share of the old (a total of 825,590 for 165,118);[4] the new

was 825,589. Five shares of General Motors *Corporation* common stock had been issued in exchange for each share of General Motors *Company* common stock.

[1] Annual reports for 1915 and 1916. Net profits here include interest on funded indebtedness, but exclude interest paid on short-term notes.

[2] The stock sold between $405, on April 24, and $850, on October 25, in 1916.

[3] Cf. announcement cited in *Commercial and Financial Chronicle*, vol. 103, p. 1214.

[4] See listing application of General Motors Corporation to the New York Stock Exchange, November 20, 1916. Fractional shares were re-

stocks, like the old, were of $100 par value. The General Motors Corporation then proceeded to dissolve most of its operating subsidiaries, acquiring direct title to their physical assets; sales companies of nominal capital ($10,000 in each case) replaced the sales organizations of the constituents; and, on August 1, 1917, when these changes had been completed, the General Motors Corporation formally became an operating rather than a holding company, primarily.[1]

Durant, in the meantime, continued vigorously to extend the operations of both the General Motors and Chevrolet enterprises. In the seventeen months between July 31, 1916, and December 31, 1917, the fixed-plant investment of General Motors more than doubled, reaching $38,657,835 on the latter date; its inventories rose from $25,100,450 to $46,559,394; and its net quick assets increased from $22,706,207 to $55,943,929. Reinvested profits in this period totaled $27,810,043, after more than $11,000,000 had been distributed in dividends.[2] The Chevrolet enterprise likewise made great strides. In 1915, it had introduced a new low-priced car retailing at $550. Previous to this time, the Ford Motor Company alone had catered effectively to this largest price-class of automobile purchasers. So great was the demand for automobiles of such price, moreover, that the Ford company's chief problem was the adequate expansion of its output; and the Chevrolet company was therefore able to absorb part of this waiting market. Branch plants, financed in part by local capital, were established in different cities; a truck-producing subsidiary was organized; and investments were made in various parts-making enterprises. Independently of its control of General Motors, therefore, the Chevrolet company was developing into an important automobile-

deemed in cash at the rate of $150 a share for common stock and $100 a share for preferred.

[1] See annual report for 1917. The New Jersey corporation was dissolved on October 6, 1917.

[2] Annual reports for 1916 and 1917.

manufacturing enterprise. A consolidated record of the output, financial volume of sales, and net profits of the Chevrolet Motor Company (Delaware) and its predecessors and subsidiaries, from the beginning of the commercial operations of the original enterprise to the end of 1917, is presented below (exclusive of dividends received from stock-holdings in the General Motors and other 'unconsolidated' enterprises, and of the operations of such enterprises):[1]

Period Ended	Output	Sales	Profits
July 31, 1914 (12 mos.)..	6,041	$4,838,639	$486,654
August 14, 1915 (12½ mos.)..	9,878	7,094,919	964,971
December 31, 1915 (4 ½ mos.)..	11,888	6,417,328	1,128,590
December 31, 1916 (12 mos.)..	50,048	24,481,351	4,115,184
December 31, 1917 (12 mos.)..	128,266	71,743,056	4,965,337

Shortly after the beginning of 1918, negotiations were begun for the acquisition by the General Motors Corporation of the Chevrolet Motor Company and its subsidiaries. Since the latter Company owned a clear majority of the common stock of the former (450,000 out of 768,733 shares outstanding, exclusive of treasury holdings), and since the Durant-Du Pont holdings were adequate for effective control of both,[2] an agreement was speedily concluded, whereby all the assets of the Chevrolet Motor Company (Delaware), except its holdings of General Motors common stock, were to be transferred to the General Motors Corporation in return for $28,268,400 par value of the latter's common stock and the assumption by the latter of the outstanding liabilities of the Chevrolet Motor Company.[3] The General Mo-

[1] From the listing application of the General Motors Corporation to the New York Stock Exchange, January 20, 1919.

[2] E. I. Du Pont de Nemours & Co., in February, 1918, announced the acquisition, 'almost entirely by private contract,' of substantial holdings in both the Chevrolet and General Motors corporations, in which, with W. C. Durant, they 'own a controlling interest.' These holdings were acquired chiefly from Pierre S. Du Pont and other individuals connected with the Du Pont company. Cf. *Commercial and Financial Chronicle*, vol. 106, p. 824.

[3] See listing application of General Motors Corporation to the New York Stock Exchange, January 20, 1919.

tors Corporation increased its authorized capitalization from $20,000,000 of six per cent preferred stock and $82,600,000 of common stock to $50,000,000 of preferred and $150,000,000 of common, in order to provide for this and other pending acquisitions. The sale became effective on May 2, 1918; and on October 11, 1918, the Chevrolet Motor Company proposed to its stockholders the dissolution of the Company and the exchange of the outstanding stock at the rate of one share of the latter for one and one-seventh shares of General Motors common and 44 cents in cash (the cash resulting from General Motors dividends).[1]

The net worth of the Chevrolet Motor Company two days before it was acquired by the General Motors Corporation, exclusive of its holdings of General Motors common stock, which it retained for distribution to its stockholders, was $36,330,939, *inclusive* of 'good-will' valued at $11,953,099.[2] Much the greater part of this net worth had been built up by reinvestment of earnings. The origins of the capital stock issues of the Chevrolet Motor Company (Delaware) had been as follows:[3]

For the outstanding capital stock of the Chevrolet Motor Company of Michigan ($235,100 par value preferred and $1,418,350 par value of common); the outstanding capital stock of the Chevrolet Motor Company of New York, Inc. ($872,000 par value); and $4,420,000 cash	$20,000,000
Less difference between $248,000 par value returned and $107,500 reissued	140,500
	19,859,500
For 450,000 shares of General Motors common stock	43,400,000
For properties of National Cycle Manufacturing Company and National Motor Truck Company, and $550,000 cash	850,000
	$64,109,500

[1] *Ibid.*

[2] Cf. balance-sheet included in listing application of General Motors Corporation to the New York Stock Exchange, January 20, 1919.

[3] *Ibid.*

Since the net worth of the Chevrolet Motor Company of Michigan, two months *after* its acquisition by the Delaware Chevrolet corporation, was only $2,598,156, and that of the New York Company much less;[1] and since the Delaware company received only sixty-five cents on the dollar for the stock sold for cash, we may conclude that considerably more than one-half of the original $20,000,000 of capital stock represented promotion services and financing charges. The stock issued in exchange for General Motors common stock had proved to be a profitable investment, apart from the control it purchased, for the Chevrolet company received dividends aggregating $4,500,000 in 1917 and $2,700,000 in the first four months of 1918, from this source. Most of the 'water' in the original capitalization of the Chevrolet Motor Company (Delaware) had been eliminated through the reinvestment of earnings by the time the enterprise passed to the General Motors Corporation: of the aggregate income of the former, up to April 30, 1918, $9,601,210 had been distributed to its stockholders, and $13,309,511 had been reinvested in the business.[2] The General Motors Corporation paid $1.12 par value of its common stock per dollar of the net tangible book assets acquired from the Chevrolet company, and seventy-eight cents per dollar of the latter's total net book assets, inclusive of 'good-will.' General Motors common stock sold on the New York Stock Exchange at prices ranging between $106.75 and $164 a share during 1918, however. The net operating earnings of the Chevrolet Motor Company during the fiscal year just preceding the purchase had been at the rate of 17.5 per cent on the par value of General Motors' investment in the Company.

[1] The report of the Michigan Chevrolet company as of December 31, 1915, is on file with the Michigan Secretary of State; the New York company was doing about one-half the volume of business of the former (cf. listing application above cited), but its net-worth figure at this date is not available.

[2] See listing application of General Motors Corporation to the New York Stock Exchange, January 20, 1919.

10. Acquisition of United Motors Corporation, etc.

The purchase of the Chevrolet Motor Company had not been consummated before the General Motors Corporation took steps to acquire the assets of a large combination of parts- and accessory-manufacturers, known as the United Motors Corporation. This combination had been promoted by Durant shortly after his reaccession to the control of General Motors, with the purpose, in part, of protecting the latter's sources of supplies.[1] The Company had been incorporated in New York on May 16, 1916, with an authorized capital stock of 1,200,000 shares of no par value, 5000 of which, denominated Class B stock, possessed sole voting power. It had issued 1,101,640 shares in gross for the following:[2]

Dayton Engineering Laboratories Company — entire issue of common stock ($150,000 par value).
Remy Electric Company — entire issue of outstanding common stock ($796,300 par value).
Hyatt Roller Bearing Company — entire outstanding capital stock ($399,700 par value, later reduced to $150,000).
New Departure Manufacturing Company — 23,429 shares ($2,342,900 par value) of the 25,000 shares of common stock outstanding.
Perlman Rim Corporation — 97,637 shares of no par value of the 100,000 shares outstanding.

A large block of the stock thus issued — it is impossible to say how much — went to the promoters: Durant is said to have received a block valued at $9,000,000, and is known to have donated 106,000 shares of the issue to the Chevrolet Motor Company (Delaware);[3] Louis G. Kaufman, president of the Chatham & Phœnix National Bank (New York), who participated in the promotion, likewise is said to have

[1] See announcement by Durant, quoted in the *Commercial and Financial Chronicle*, vol. 102, p. 1816.

[2] From listing application of General Motors Corporation, January 20, 1919.

[3] Cf. article, 'That Man Durant,' by W. A. P. John, in *Motor*, January, 1923. The manuscript of this article was read by Mr. Durant before publication.

received a block valued at $9,000,000.[1] Some of the stock obtained by individuals was sold by them to investment bankers, who offered the shares to the public in May, 1916, at $62 a share.[2]

The United Motors Corporation started purely as a holding company; it soon acquired the physical assets of the companies of which it owned the entire capital stock, however; and, with the profits derived from its constituents, it made direct investments in other enterprises. One of its divisions, the Jaxon Steel Products unit, took over the physical assets of the Perlman Rim Corporation, which, like the United Motors Combination, had been sponsored by W. C. Durant.[3] The Corporation added to its original parts-making enterprises by acquiring a controlling interest in the Harrison Radiator Corporation and in the Klaxon Company, producers of automobile radiators and horns, respectively; and it established a servicing organization, known as the United Motors Service, Inc., to provide repair service for its various lines of accessories. In the two years and three months ended September 30, 1918, the aggregate profits of this Combination had totaled $18,487,519, of which $17,944,083 had been reinvested in the business.[4]

On August 27, 1918, the authorized capitalization of the General Motors Corporation was increased as follows: preferred stock, from $50,000,000 to $100,000,000; common stock, from $150,000,000 to $200,000,000. A month later, the General Motors Corporation offered to acquire the assets of the United Motors Corporation, and to assume the latter's liabilities, paying therefor: $33,049,200 par value of

[1] This allegation, made by several officials of the General Motors Corporation, is not verifiable.

[2] *Commercial and Financial Chronicle*, vol. 102, pp. 1902 and 1998.

[3] See letter of President Louis H. Perlman, April 11, 1916, quoted in the *Commercial and Financial Chronicle*, vol. 102, p. 1,441. The United Motors Corporation paid $5,500,000 in cash for the assets of the Perlman Rim Corporation, which was dissolved on July 30, 1918. (General Motors listing application of January 20, 1919.)

[4] General Motors listing application of January 20, 1919.

General Motors preferred stock and $11,016,400 par value of common stock.[1] Before official action was taken, however, it developed that the General Motors Corporation had agreed with the Listing Committee of the New York Stock Exchange that it would issue no additional preferred stock possessing priority equal to that of the existing issue.[2] At a special meeting of the stockholders, held December 10, 1918, it was decided, therefore, to decrease the authorized issue of preferred stock to $20,000,000 par value, and to authorize the issue of $150,000,000 par value of 6 per cent *debenture* stock, $33,049,200 of which was to be issued instead of preferred stock as part payment for the assets of the United Motors Corporation, and $20,000,000 of which was to be reserved for the redemption of the outstanding preferred stock.

The new debenture stock was given distinctive rights and privileges as compared with those of the then existing issue of preferred stock. Its dividend rate, like that of the preferred stock, was six per cent, and cumulative, but: (1) it was given equal voting rights with common in the event that the Corporation's net earnings were not at least one and one-half times the amount required for the payment of debenture-stock dividends; (2) in the event of a six months' default in debenture-stock dividends, it was to be given sole voting power, to the exclusion of the common stock; (3) no new debenture stock was to be issued unless the net assets of the Corporation above all direct liabilities other than capital stock should equal one and one-half times the amount of debenture stock outstanding after the new issue; (4) no mortgage was to be placed on any of the assets of the Corporation, other than purchase-money mortgages, the assumption of mortgage liabilities on property purchased, and the pledge of stocks for periods less than three years,

[1] *Ibid.* Cf. also announcement of Alfred P. Sloan, Jr., then president of the United Motors Corporation, quoted in the *Commercial Financial Chronicle*, vol. 107, p. 1486.

[2] See announcement of W. C. Durant in the *Commercial and Financial Chronicle*, vol. 107, p. 2101.

without the approval of at least three-fourths of the debenture stock outstanding; (5) the priority of the debenture stock as regards dividends and assets in case of dissolution was to be *pari passu* with the preferred stock; and (6) the debenture stock was to be redeemable on any dividend date after October 31, 1919, at $115 a share.

The stockholders of the United Motors Corporation accepted the amended offer, and voted on November 6, 1918, to dissolve the Corporation and to distribute the proceeds of the sale of the assets among the stockholders.[1] The General Motors Corporation, by turning in for cancellation the 106,000 shares of the former's stock which it had acquired through acquisition of the Chevrolet Motor Company, reduced the purchase price from $33,049,200 of debenture stock and $11,016,400 of common stock to $29,869,200 and $9,956,400, respectively, of these stocks.[2]

The General Motors Corporation took over the assets of the United Motors as of December 31, 1918, and thereby acquired, in addition to the physical assets of the latter, the following stock interests:[3]

		Issued	Acquired
Dayton Engineering Laboratories Co.	Pref.	$200,000	
(Delco electrical systems.)	Com.	150,000	$150,000
New Departure Mfg. Co. (Ball	Pref.	500,000	
bearings.)	Com.	2,500,000	2,342,900
Jaxon Steel Products Co. (Selling			
agency.)	Com.	10,000	10,000
Hyatt Roller Bearing Co. (Selling			
company.)	Com.	150,000	150,000

[1] Cf. listing application of General Motors Corporation, dated January 20, 1919.

[2] *Ibid.* The stocks thus issued to the United Motors Corporation were given the right to dividends from October 1, 1918.

[3] In addition to the physical assets of the Jaxon Steel Products Division, the Hyatt Roller Bearing Division, and the Remy Electric Division, of which the selling companies listed here were the respective sales organizations. Cf. listing application dated January 20, 1919. The General Motors Corporation subsequently acquired the remaining outstanding capital stock of these companies, save a portion of the preferred stock of the New Departure Manufacturing Company.

		Issued	Acquired
Remy Electric Co. (Selling company.)	Com.	$796,300	$796,300
Harrison Radiator Corp. (Radiators.) (no par)	Pref.	791,300	400,000
	Com.	10,000 shs.	10,000 shs.
Klaxon Co. (Electric horns.)	Pref.	400,000	175,000
	Com.	1,000,000	500,000
United Motors Service, Inc.	Com.	50,000	50,000
Bearings Service Co. (Service companies)	Com.	50,000	25,000

In the United Motors group of enterprises, the General Motors Corporation acquired a number of the most important parts- and accessories-producers in the country. The par value of the securities issued for this acquisition constituted approximately 78.6 per cent of the book value of the assets acquired, *inclusive* of intangible items valued at $21,536,155; excluding intangible assets, the General Motors paid approximately $1.28 in par value of its securities per dollar of net tangible assets. The net income of the United Motors Corporation in the year ended June 30, 1918, had been $6,926,851,[1] or about 15.7 per cent of the par value of General Motors' investment. It is interesting to note that nearly one-half of the net tangible assets of the United Motors group had been built up through the reinvested profits of the period of two years and three months ended September 30, 1918.[2]

Several other acquisitions of the General Motors Corporation during 1918 may be noted briefly: the entire capital stock of the Lancaster Steel Products Company, producer of cold-drawn steels; the entire capital stock of the Chevrolet Motor Company of Canada, Ltd.; the remaining $503,000 par value common stock of the McLaughlin Motor Car Company, Ltd., and the entire capital stock of the McLaughlin Carriage Company, Ltd., producer and selling agent, respectively, of the Buick car in Canada; the remaining outstanding preferred stock of the Harrison Radiator Corporation; 22,975 shares of no par value of the

[1] See General Motors listing application of January 20, 1919.

[2] *Ibid.*

Scripps-Booth Corporation, producer of the Scripps-Booth automobile (of which 4008 were produced in 1918);[1] the entire capital stock and the entire common stock, respectively, of the Samson Sieve-Grip Tractor Company and the Janesville Machine Company, the plants of which were consolidated for the production of tractors. A total of $1,588,700 in cash was paid in connection with these acquisitions, the larger part of the purchase-prices having been paid in General Motors securities.[2]

As a result of its numerous acquisitions and of the sale for cash, in December, 1918, of $24,000,000 par value of its common stock (from which the Corporation realized $28,800,000[3]), and of sundry small stock transactions, the outstanding capital stock of the General Motors Corporation increased by nearly $100,000,000 during 1918. Its net investment in fixed plant increased by $38,098,596; its 'good-will, patents, copyrights, etc.,' by $23,743,290; and its operations during the year resulted in profits of $14,825,530, of which all but $1,668,353 was distributed in dividends.[4] The capital-stock transactions of the Corporation during the year are summarized below:

	Preferred	Debenture	Common
Exchanged for preferred stock of General Motors Co. (N.J.).....	$7,500		
Acquired through McLaughlin Carriage Co., Ltd.....	13,300 [4]		
Issued for Chevrolet Motor Co. (Del.)			$28,268,400
Issued for United Motors Corp.....		$29,869,200	9,956,400
Issued for Canadian Chevrolet and McLaughlin Motor Companies..			4,900,000
Issued for Lancaster Steel Prod. Co. plus $1,566,000 par value of General Motors debenture stock.		500,000	1,617,500

[4] Decrease

[1] This acquisition, together with 13,650 shares previously held by the Chevrolet Motor Company (Delaware), gave General Motors a controlling interest.

[2] From the records of the General Motors Corporation.

[3] Annual report for 1918. The stock was marketed in 1919, after having been underwritten 'without cost to the corporation.'

[4] *Ibid.*

	Debenture	Common
Issued for 22,975 shares of no par value of Scripps-Booth Corp. common stock		$381,200
Issued for $387,100 par value preferred stock of Harrison Radiator Corp.	$387,100	
Issued to employees under bonus plan		1,361,900
Issued for services		21,200
Acquired through purchase of Lancaster Steel Products Co.	1,556,000 [d]	
New issue sold for $28,800,000 cash		24,000,000
Acquired in treasury, miscellaneous	15,000	
	$5,800 [d] $29,175,300	$70,506,600

[d] decrease.

The changes wrought by the acquisitions and the operations of 1918 are reflected by the condensed comparative consolidated balance-sheet of the General Motors Corporation and its subsidiaries as of December 31, 1917, and December 31, 1918:[1]

Assets

	1917	1918
Real estate, plant, equipment (net)	$38,657,835.06	$76,756,431.13
Investments in allied companies	2,030,273.48	2,839,531.23
Cash in banks and on hand	18,865,645.27	30,636,621.48
Liberty bonds	1,255,000.00	28,852,018.00
Marketable securities		172,304.86
Sight drafts against B/L attached	7,590,279.25	3,316,384.90
Due from U.S. on war contracts	449,855.83	7,305,626.76
Notes and accounts receivable	5,555,403.34	21,995,359.50
Inventories at cost or less	46,559,394.15	91,137,512.59
Total current and working assets	$80,275,577.84	$183,415,828.09
Deferred expenses	854,434.61	762,651.85
Good-will, patents, copyrights, etc.	11,971,603.48	35,714,893.43
	$133,789,724.47	$299,489,335.73

[1] Annual report for 1918.

LIABILITIES

	1917	1918
Debenture stock (authorized $150,000,000) issued $30,756,300; less in treasury of corporation, $1,581,000		$29,175,300.00
Preferred stock (authorized $20,000,000) issued, $19,684,300; less in treasury of corporation, $13,300 (1918)	$19,676,800.00	19,671,000.00
Common stock (authorized $200,000,000) issued $151,301,100; less in treasury of corporation, $3,921,200 (1918)	76,873,300.00	147,379,900.00
Purchase-money bonds		225,000.00
Outstanding capital stock and surplus of subsidiaries, not owned:		
capital stock	540,500.00	2,960,400.83
surplus	859,083.18	427,754.20
Accounts payable	$10,665,717.52	$18,453,316.99
Notes payable		10,802,154.11
Taxes, payrolls, sundries, accrued	4,858,326.57	3,769,865.29
Total current liabilities	$15,524,044.09	$33,025,336.39
Reserve for two months' proportion of debenture and preferred dividends	196,768.00	488,463.00
Reserve for federal taxes and extraordinary expenditures	6,939,018.55	25,863,823.23
Reserve for sundry contingencies	1,671,818.08	3,863,420.65
Surplus	11,508,392.57	36,408,937.43
	$133,789,724.47	$299,489,335.73

In its annual report for 1918, E. I. Du Pont de Nemours & Co. formally announced its acquisition of a '27.6 per cent interest in the common stock of the General Motors Corporation,' and declared:

We feel fortunate also in our partnership with Mr. William C. Durant, president of the General Motors Corporation and the father and leader of the motor industry not only in the United States, but in the world. The alliance leaves the management and general conduct of the General Motors Corporation as heretofore except that the responsibility for financial management is now shared by the officers of our company.

President Durant, in his annual report of 1918, reciprocated by declaring:

> The General Motors Corporation is to be congratulated upon the association with the E. I. Du Pont de Nemours & Company resulting from the acquisition of a large stock interest by that company which insures financial stability and the coöperation of the finest engineering organization in the country.

11. The Post-War Boom

The year 1919 was one of unparalleled prosperity for the General Motors Corporation, as, indeed, for American industry as a whole. Under the impetus of the post-war boom and of the accumulated demand for automobiles, the production of which, like that of other goods, had been curtailed during the War, the General Motors Corporation increased its output of cars, trucks, and tractors by nearly sixty per cent, as compared with the output of 1918. Its financial volume of sales, reflecting in part the large acquisitions of the year previous, rose above half a billion dollars — an increase of nearly ninety per cent. And the net profits of the Corporation jumped from less than $15,000,000 in 1918 to more than $60,000,000 — an increase of more than three hundred per cent.

A tremendous expansion in the fixed investment of the Corporation accompanied these increases in its volume of business.[1] Approximately $20,000,000 was expended for plant additions to the car-producing factories. Work was begun on a $20,000,000 office building in Detroit, which absorbed more than $4,000,000 during 1919. A sixty per cent stock interest was acquired in the Fisher Body Corporation, the largest producer of automobile bodies in the world, General Motors paying therefor approximately $5,800,000 in cash and $21,851,000 in five-year serial notes.[2] In addi-

[1] The details of this expansion may be found in the annual reports of 1919–21, inclusive.

[2] The General Motors Corporation purchased 300,000 newly issued shares of no par value of the Fisher Body Corporation, these shares being deposited with four trustees, two representing the former and two the

tion, more than $20,000,000 in cash and $12,481,100 par value of General Motors' debenture and preferred stocks was expended for a large housing-construction program, initiated for the benefit of the Corporation's employees; the organization of the General Motors Acceptance Corporation to aid in financing distributors, dealers, and retail purchasers; and the acquisition of new or additional interests in nine parts-making enterprises and in the Guardian Refrigerator Company (later, Frigidaire, producer of electric refrigerators), the Dayton Products Company (producer of detonators, pressure indicators, etc.), and the Domestic Engineering Company (producer of Delco-Light power plants). In all, in the single year 1919, the General Motors Corporation increased its 'investments in unconsolidated companies' by $50,558,960; expended $47,741,698 directly for real estate, plant, and equipment; acquired physical assets valued at $12,439,459, less $6,063,229 for depreciation, by consolidations; and, as a result of a reappraisal of its properties, added $29,888,896 further, less $6,959,612 for depreciation, to its plant accounts, applying this net addition to a reduction of its 'good-will' valuation.[1] During 1920, further capital expenditures of more than $79,000,000 were required to complete this expansion program.[2]

In May, 1919, the Corporation sold an issue of $30,000,000 of debenture stock, from which it realized $25,425,000; it converted $28,638,780 of Liberty bonds into cash; and, of the profits of 1919, $38,468,431 was reinvested in its business.[3] From these sources the Corporation procured most of

latter, under a five-year voting trust. An agreement dated November 9, 1917, provided that the General Motors Corporation purchase substantially all its automobile bodies from the Fisher corporation for a period of ten years at prices equal to cost of production plus 17.6 per cent, and that the Fisher corporation distribute quarterly dividends aggregating at least $10 a year per share of common stock, so far as earnings permitted. The Fisher Body Corporation was consolidated with General Motors in 1926. (Cf. annual reports for 1919 and 1926, and *Standard Statistics*, Bulletin F 11.)

[1] Annual report for 1919. [2] Annual report for 1920.

[3] Annual reports for 1919 and 1920.

the funds for its capital expenditures. The total increase in the Corporation's net worth in 1919, as measured by the increases in issued capital stock and in surplus, was $84,714,060, made up as follows:[1]

Added to surplus through reinvestment of 1919 earnings, after dividends as follows:		
preferred stock	$1,032,376	
debenture stock	3,180,137	
common stock	17,324,541	$38,468,431
Added to surplus through acquisition of properties and through other adjustments		3,764,529
Sale of $30,000,000 par value debenture stock		30,000,000
Issue of $6,450,000 debenture and $6,031,100 common stock for properties, less $100 par value, net, reacquired		12,481,100
Issue of $2,714,000 debenture stock for conversion and cancellation of equivalent amount of preferred stock		.....
		$84,714,060

The expansion of the fixed capital investment of the Corporation was not accompanied by a corresponding increase in working capital. Despite the huge increases in the former and the tremendous growth in the Corporation's volume of business, its net working assets at the end of 1919 were only $8,852,472 greater than at the end of the preceding year. The ratio of its current assets to current liabilities had fallen from 5.55 to 1, to 3.84 to 1; and much of these current assets consisted of specialized inventories easily subject to 'freezing' in the event of a falling-off in the rate of automobile production. To facilitate the raising of new working capital, the Corporation's stockholders, on June 12, 1919, had approved an increase in the authorized amounts of debenture and preferred stocks to $500,000,000 each. The original offering of the debenture stock underwritten just previously ($30,000,000), to which allusion has been made above, was for $50,000,000.[2] Due, probably, to the heavy discount at which the Corporation was forced to issue this stock (15.25 per cent, to the underwriters[3]), the remaining

[1] *Ibid.*

[2] *Commercial and Financial Chronicle*, vol. 108, p. 2025, vol. 109, p. 176.

[3] Cf. annual reports for 1919 and 1920.

$20,000,000 of the offer was withdrawn; but the need for additional working capital remained.

On November 26, 1919, the board of directors voted to recommend to the stockholders the adoption of the following changes in the capitalization of the Corporation:[1]

1. Common Stock: That the authorized amount of common stock be changed from 5,000,000 shares of $100 par value to 50,000,000 shares of no par value; and that 15,699,190 shares of the new stock be issued in exchange for the 1,569,919 shares of outstanding common stock, at the rate of 10 shares of the new stock for each share of the old.

2. Six per cent Debenture Stock: That the authorized amount of six per cent debenture stock be reduced from $500,000,000 to $90,000,000, par value.

3. Seven per cent Debenture Stock: That $500,000,000 of seven per cent debenture stock be authorized; that this stock rank equally with the six per cent debenture and six per cent preferred stocks as respects priority in dividends and in assets in case of dissolution; that its dividends be cumulative; that in the case of default in dividend payments for six months, the seven per cent debenture stock share with the six per cent debenture stock the exclusive right to vote, as against the common and preferred stocks; that the two debenture issues share equally with the common stock the right to vote in case the net earnings during any year be less than nine per cent of the par value of the outstanding six and seven per cent debenture issues; that the consent of three-fourths of the debenture issues be required to enable the Corporation to mortgage its property (except for purchase-money mortgages maturing within three years); and that the seven per cent debenture stock be redeemable on any dividend date at $120 and accrued dividends per share.

4. Preferred Stock: That no change be made in the preferred stock issue.

In connection with these recommendations, President Durant announced that holders of the existing six per cent debenture and preferred stocks would receive subscription warrants permitting them to purchase two shares of the seven per cent debenture stock at par for each share of the older issues held, payment to be made either wholly in cash or fifty per cent in cash and fifty per cent in six per cent

[1] General Motors listing application of June 23, 1919.

debenture or preferred stock.[1] In the same announcement, explaining the purpose of the new debenture issue, President Durant declared:

> Large capital investments will be necessary which will be better financed by a seven per cent senior security than by a six per cent senior security. If all subscription rights are taken up, the plan will bring in $85,000,000 in cash, which, added to the present cash items, will make $175,000,000, enough to care for a gross business of $800,000,000 in 1920.

The plan was ratified by the stockholders at a special meeting on January 6, 1920, and temporary certificates for the new debenture stock were issued immediately.[2] Despite special appeals to the stockholders, pointing out that holders of the existing preferred securities had an opportunity to substitute a seven per cent return for a six per cent return by the investment of an additional $100 per share owned,[3] only $10,998,700 par value of the offering of $217,602,400 was subscribed; and since $4,091,900 of these subscriptions was paid in the form of stock, the Corporation realized only $6,906,800 in cash from the offering, instead of the expected $85,000,000.[4]

In this predicament, with many of the large units of its building program still in process of construction, and with its inventories of materials steadily mounting, the Corporation sought and procured the intermediation of J. P. Morgan & Co. On June 2, 1920, the board of directors voted to issue 3,287,803 shares of the new no-par value common stock at $20 a share, the issue to be underwritten by J. P. Morgan &

[1] Circular letter dated November 26, 1919; cf. *Commercial and Financial Chronicle*, vol. 109, p. 2075.

[2] The absence of proxies for about thirty-five per cent of the debenture stock prevented the ratification of the plan at the first meeting, December 30, 1919. The new no-par value common stock was exchanged for the previous issue at the rate of ten for one beginning May 3, 1920.

[3] Letters of W. C. Durant, president, and T. S. Merrill, secretary, quoted in the *Commercial and Financial Chronicle*, vol. 109, p. 2075, and vol. 110, p. 265, respectively.

[4] Annual report for 1920.

Co. and the Explosives Trades, Ltd. (of London, England), subject to the rights of the common stockholders to subscribe to amounts up to twenty per cent of their present holdings.[1] In a letter to the common stockholders, President Durant declared that the proceeds of the new issue would provide $64,000,000 in cash for the working capital requirements of the Corporation, particularly for the requirements of the truck, tractor, and farm-implement lines.[2] J. P. Morgan & Co. announced at the same time that they had acquired a substantial interest in the Corporation through their underwriting of 1,419,856 shares of the offering, the remaining 1,800,000 shares having been underwritten by English interests (the Explosives Trades, Ltd., later named Nobel Industries, Ltd.); and that the Morgan firm would shortly be represented on the Corporation's board of directors by Messrs. E. R. Stettinius, of the firm; George F. Baker, of the First National Bank (New York); Seward Prosser, of the Bankers Trust Company (New York); Owen Young, of the General Electric Company; W. H. Woodin, of the American Car and Foundry Company; and Clarence M. Wooley, of the American Radiator Corporation.[3] These representatives were elected to the board a few weeks later; and on July 17, 1920, it was announced that more than ninety-nine per cent of the common stock offering had been subscribed.[4]

As the price of their services, the bankers are said to have demanded the right to purchase 200,000 shares of common stock at $10, instead of $20, a share. To avert possible criticism, however, they are said to have obtained the stock at this price from the Chevrolet Motor Company (Delaware), instead of from the Corporation directly; and Durant is said to have exacted a promise that the Corporation would be enabled later to return a similar block to the Chevrolet

[1] Cf. listing application dated June 12, 1920, and announcement of J. P. Morgan & Co., cited in the *Commercial and Financial Chronicle*, vol. 110, p. 2390.

[2] *Ibid.* [3] *Ibid.*

[4] *Commercial and Financial Chronicle*, vol. 111, p. 299.

company on the same terms.[1] The Chevrolet Motor Company (Delaware), after the sale of virtually all of its assets except its holdings of General Motors Corporation stock, had not been dissolved, contrary to a previous announcement, but had continued to function as a holding company, with Durant and the Du Pont interests as the chief stockholders.[2]

12. The Post-War Crisis

The proceeds of the sale of common stock netted the General Motors Corporation about $60,000,000 by December 31, 1920 (254,764 shares having not been fully paid for at that time);[3] and the funds and financial backing thus acquired were of tremendous aid to the Corporation in meeting the emergency created by the sudden curtailment of the demand for its products that set in in August and September, 1920.

The year 1920 had begun very auspiciously. The Corporation had just completed the most successful year in its history. The demand for its cars had continued at a high level throughout the closing quarter of the year just ended; and this demand increased afresh in the early months of 1920. Both volume of sales and net profits promised to exceed the record-breaking volume of 1919; and indeed, this promise was realized for financial volume of sales. On February 2, 1920, the Corporation paid a cash dividend of $3 a share to the common stockholders of record on December

[1] W. A. P. John, 'That Man Durant,' in *Motor*, January, 1923. Mr. Durant personally provided Mr. John with much of the material for this article and read the manuscript before publication.

[2] Each share of Chevrolet Motor Company (Delaware) stock represented 1.3195 shares of General Motors common stock on December 31, 1919. See annual report of E. I. Du Pont de Nemours & Co. for 1919.

[3] Cf. annual report of General Motors Corporation for 1920. The Corporation lists the total proceeds from the sale of common stock at $98,494,835. This figure includes, however, stock issued as a bonus to its employees, stock issued for the assets of the Chevrolet Motor Company of California, and stock issued as stock dividends on the common stock — all calculated at $20 a share.

31, 1919; on May 1, it paid an initial quarterly dividend of 25 cents in cash and one-fortieth of a share of common stock on its new no-par value common stock; it paid similar dividends on August 2 and on November 1, 1920. This was equivalent to an annual rate of return of $10 in cash, and (at a valuation of $20 per share of no-par value stock) of $20 in stock on the preceding common stock of $100 par value. (The no-par common stock sold at a 'high' of $42 a share on March 26, 1920, and did not decline to less than $20 a share until after the week of September 21, 1920.)

The early promise and actuality of an increased volume of business, however, led to heavy increases in the volume of inventories. Starting at the beginning of the year at $128,696,652 (as compared with $91,137,513 at the opening of 1919), the inventories mounted rapidly, reaching a total of $167,965,641 on April 30, and $209,000,000 by the end of October, when a tremendous decline in the demand for the Corporation's products had already set in.[1]

The large increase in the financial volume of inventories occasioned concern as early as the month of March, 1920; and at that time, the Executive Committee approved a definite program of production with a view toward minimizing the inventory requirements.[2] The administrative organization of the Corporation, however, made it extremely difficult to enforce the rulings of the Executive Committee. While the Corporation had become chiefly an operating company, the actual administration of its plants was in the hands of divisional managements, each concerned with the expanded production of its own product. In May, 1920, a special Inventory Allotment Committee was appointed to establish a more effective control over the inventory demands of the various divisions; but the rulings of this committee obtained no more adherence on the part of the operating divisions than had the more general injunctions of two months previous. Thus, in his annual report for 1922, President Du Pont declared:

[1] Annual report for 1922. [2] *Ibid.*

The report of the Inventory Allotment Committee was presented and approved before June 1, 1920. It was unfortunate that the rulings of the Executive and Finance Committees and their cautions remained unheeded. As a result, inventories reached a total of $209,000,000 at the end of October, 1920, exceeding by $60,000,000 the allotments of the Executive and Finance Committees and by $100,000,000 the amount in actual use during the active summer of 1922. This excess accounted for about 70 per cent of the borrowings at that time.

It was doubly unfortunate that the spirit of the committee rulings was totally disregarded by a few of the Divisions, the losses of which, due to expanded inventories and commitments for the future, amounted to $48,579,872, or much more than the total operating deficit of the whole corporation during the year 1921. The operating losses of these Divisions during the liquidation and reconstruction period of 1921 added $15,330,938, making a total of $63,910,810 on their account.

Not only was the Corporation called upon to finance its growing volume of inventories, however, but the fulfillment of its program of fixed-plant expansion, involving the completion of construction projects already under way, entailed a capital expenditure of approximately $79,161,951 in 1920, nearly $15,000,000 of which was required merely for its new office and administration building in Detroit.[1] A sudden decline in sales in the late summer and fall of 1920, therefore, created an exceedingly embarrassing situation. The extent of this decline and its effect, in view of the Corporation's greatly expanded investment in fixed plant and inventories, may be seen from Table 32, in which the Corporation's sales of cars and trucks are presented by months for 1919 and 1920.[2]

On its face, the ability of the General Motors Corporation to weather this storm, the results of which were seriously aggravated by the obsolescence and decline in value of inventories, plant, and equipment purchased or constructed at 'boom' prices, was fairly remarkable. More than $100,000,000 was written off the books of the Corporation be-

[1] Annual reports of 1920 and 1921.

[2] From the records of the General Motors Corporation.

TABLE 32. GENERAL MOTORS SALES OF CARS AND TRUCKS BY MONTHS, 1919 AND 1920

MONTH	1919	1920
January	25,039	34,313
February	25,936	33,864
March	29,844	42,504
April	32,991	42,183
May	39,130	42,653
June	34,710	46,852
July	31,720	45,479
August	31,986	32,899
September	33,437	28,796
October	41,847	18,302
November	36,329	12,798
December	28,770	12,432
	391,738	393,075

tween 1920 and 1922 for the devaluation of plant, equipment, and inventories, and for operating and liquidation losses.[1] In the three years ended in 1920, the Corporation's fixed capital expenditures had aggregated $281,556,104; and in a period of pronounced distress in the money markets and in general business, it found itself in possession of more than $200,000,000 of depreciating inventories, with further commitments already made.[2] On the other hand, the following favoring factors may be noted and emphasized:

(1) The Corporation's program of fixed-capital expansion had been soundly financed: it had not entailed the flagrant absorption of working capital in fixed assets nor the use of short-term obligations for such additions. Indeed, except for purchase-money obligations and small mortgages assumed, it had not involved the creation of any funded debt whatever. The financial sources of the expansion program are summarized in Table 33.[3]

(2) While the Corporation's program of fixed-capital expansion had not provided for commensurate additions to its working capital, the previous strength of its working-capital condition permitted considerable extension without serious

[1] Annual reports for 1920, 1921, 1922. [2] *Ibid.*, 1922. [3] *Ibid.*

TABLE 33. FINANCIAL SOURCES OF FIXED CAPITAL EXPANSION OF GENERAL MOTORS CORPORATION, 1918–20

From net earnings reinvested:		
Net earned income, 1918, 1919, 1920, exclusive of extraordinary write-offs of 1920	$193,801,804	
Less federal taxes	$47,274,750	
Less dividends paid	$57,386,370	$89,140,684
From sale of securities (cash):		
Common stock	98,494,835	
Six per cent debenture stock	25,425,000	
Seven per cent debenture stock	6,906,800 [a]	
Employees' bonus, deducted from income but paid in newly issued stock	13,569,144	
		134,395,779
Securities issued for properties:		
Debenture and common stock	122,141,520	
Fisher Body purchase-money notes (net outstanding)	9,840,000	
Mortgages assumed	1,629,070	
		133,610,590
		$357,147,053

[a] Represents actual cash received from $10,998,700 par value of this stock issued; the remainder ($4,091,900), was paid in six per cent debenture stock.

jeopardy. The ratio of current assets to current liabilities at the end of 1918 was 5.5 to 1; at the end of 1919, 3.84 to 1; at the end of 1920, 2.24 to 1. The last-named ratio reflects large 'write-offs' for inventory depreciation, and, like the others, allows for accruals of interest and of preferred and debenture dividends. We have several times observed, moreover, that the working-capital requirements of automobile producers were minimized by various practices peculiar to the industry. Finally, we may note that the new capital investment in the Corporation between 1918 and 1920 exceeded the total of fixed-capital expenditures by more than $75,000,000. (See Table 33.)

(3) The ability of the General Motors Corporation to withstand the situation occasioned by the sharp slump in its sales in the latter part of 1920 is not adequately explained, however, by reference to the fact that its current assets at

the worst were approximately two and one-quarter times the amount of its current liabilities. To the extent that these assets consisted of inventories that could not be liquidated presently, the working capital ratio is misleading. The actual cash position of the Corporation and its ability to borrow were, in fact, of far greater importance. In these emergency essentials, the Corporation was fortunate indeed. The net earnings of 1920, before special 'write-offs' and before the setting-up of a 'reserve for unforeseen contingencies,' but after all other operating and income charges save dividends, had aggregated $67,273,313; the Corporation had realized approximately $60,000,000 in cash from the sale of common stock in July, 1920; and, with the support of the powerful financial group that had become identified with its financial management in connection with this stock issue, it was able to borrow a maximum (on October 13, 1920) of $82,784,824 on its short-term notes in the midst of the acute financial situation of late 1920.[1] By reason, most immediately, of these financial operations, the Corporation was able not only to maintain its solvency, but to pay full dividends on its debenture and preferred stocks, totaling $5,620,246, in 1920, and to disburse quarterly in 1921, from the earnings of 1920, a total of $17,893,288 in cash dividends on common stock.

13. The Stock Market: Resignation of William C. Durant

Throughout the year 1919 and the first three months of 1920, the common stock of the General Motors Corporation had sold at almost constantly rising prices on the New York Stock Exchange. The following table shows the price at which the last sale was made in substantially the last week of each of the fifteen months of this period, and the volume of trading each week.[2]

[1] Annual reports for 1920, 1921, 1922.

[2] Compiled from the weekly summaries published in the *New York Times Annalist.*

TABLE 34. STOCK-MARKET PRICES OF GENERAL MOTORS COMMON STOCK IN 1919 AND FIRST THREE MONTHS OF 1920

WEEK ENDED	PRICES AT LAST SALE	VOLUME OF TRADING
January 25, 1919	$123.50	15,300 shares
March 1	156.50	102,700
March 29	169.50	97,200
April 26	180.50	54,300
May 31	209.00	80,000
June 28	236.00	112,850
July 26	230.50	37,800
August 30	236.25	50,500
September 27	255.625	66,100
October 25	326.50	63,900
November 29	325.50	100,900
December 27	337.75	27,400
January 31, 1920	307.75	80,200
February 28	241.75	185,400
March 27	376.00	221,400

The turn in the stock market came abruptly. Between March 27 and May 1, 1920, the stock dropped from $376 to $295 a share (a stock dividend of two and one-half per cent accounted for some of this decline); and the new no-par value common stock, ten shares of which had been issued for each share of the old, was sold at $24 a share on May 24. From this time forward to the end of 1920, with few interruptions, the price of the stock continued to fall. The following table shows the decline in the stock-market quotations of General Motors common stock during the last eight months of 1920.[1]

During this continuous decline in the market value of General Motors common stock, William C. Durant, president of the Corporation, had been constantly buying the stock on his own account to support the market.[2] Not only did he support the market directly, but also, aided by certain

[1] Compiled as in Table 33.

[2] W. A. P. John, 'That Man Durant,' in *Motor*, January, 1923.

of his associates, he purchased many large blocks of stock privately to prevent them from being thrown on the market: at one time he and his friends purchased a single block of

TABLE 35. STOCK-MARKET PRICES OF GENERAL MOTORS COMMON STOCK IN THE LAST EIGHT MONTHS OF 1920

WEEK ENDED	PRICE AT LAST SALE	VOLUME OF TRADING
May 29, 1920	$27.625	133,900 shares
June 26	24.00	84,800
July 31 [a]	22.25	181,100
August 28	21.25	40,500
September 25	20.00	107,500
October 30 [a]	17.00	84,500
November 27	15.75	246,600
December 25	13.25	58,800

[a] Stock dividends of one-fortieth of a share, each, were declared on the common stock of record on July 15, and October 5.

150,000 shares from a Western syndicate at a cost of $4,500,000, it is said, payment being made in notes endorsed personally by Durant, with common stock of the Chevrolet Motor Company (Delaware) offered as collateral.[1] As the price continued to fall, Durant formed a number of successive buying syndicates, the members of which he personally guaranteed against loss, to support the market.[2] Despite these maneuvers, the price of General Motors common stock, in sympathy with a large part of the market, continued to decline. Durant's motives in thus risking his personal fortune are ascribed by his friends to a mixture of confidence in the essential value of the stock and of his sense of *noblesse oblige* — the obligation he felt to protect the hundreds of investors who had consistently given him a personal allegiance in his motor-car enterprises.[3]

Late in November, after General Motors had begun to drop below $15 a share, Durant was no longer able to main-

[1] W. A. P. John, 'That Man Durant,' in *Motor*, January, 1923.

[2] *Ibid.*

[3] *Ibid.* The writer has heard this opinion from numerous persons in Detroit.

tain his position. His personal indebtedness to forty-four brokerage houses was estimated by Dow, Jones & Co. at $27,000,000.[1]

On November 22, 1920, Durant announced that he had sold 'a substantial block of stock of the General Motors Corporation to the Du Pont Securities Corporation of Wilmington, Delaware, which has been formed by Pierre S. Du Pont and his associates, and in the stock of which I will have a large interest.'[2] On November 30, 1920, the General Motors Corporation announced the resignation of Durant from the presidency of the Corporation, and the succession of Pierre S. Du Pont.

The financing of this purchase by the Du Pont interests is summarized in the annual report of E. I. Du Pont de Nemours & Company for 1920 as follows:

> Late in November last, William C. Durant, then president of the General Motors Corporation, requested that we take over the management and control of that corporation, advising that he desired to resign and sell his interest in the corporation in order to liquidate his personal indebtedness, which was very large and pressing.
>
> Negotiations were conducted by us through the Du Pont American Industries, Inc., which is owned entirely by your company, and the Chevrolet Motor Company, in which it owns a controlling interest, and resulted as follows:
>
> 1. Incorporation of Du Pont Securities Co. in Delaware with a capital consisting of (*a*) $7,000,000 eight per cent cumulative voting preferred stock, and (*b*) 100,000 shares of no-par common stock, non-voting.
> 2. (*aa*) $4,200,000 preferred and 36,000 shares of common stock was sold to the Du Pont American Industries, Inc., for which it paid $4,200,000 in cash and loaned to the Du Pont Securities Co. 824,179 shares of General Motors common stock.
>
> (*bb*) $2,800,000 preferred and 24,000 shares of common stock were sold to the Chevrolet Motor Company, for which it paid $2,800,000 in cash and loaned to the Du Pont Se-

[1] *Commercial and Financial Chronicle*, vol. 111, p. 2233. W. A. P. John (*loc. cit.*) declared that, after clearing this indebtedness, Durant's personal fortune of $90,000,000 had been wiped out.

[2] *Commercial and Financial Chronicle*, vol. 111, p. 2143.

curities Co. 549,453 shares of General Motors common stock.

The above supplied $7,000,000 in cash to the Du Pont Securities Co. and 1,373,632 shares of General Motors common stock on loan.

3. (*cc*) The Du Pont Securities Co. then sold at par $20,000,000 of one-year eight per cent collateral trust bonds, through J. P. Morgan & Company. These bonds are secured by 4,000,000 shares of the General Motors Corporation common stock which the company acquired as follows:
   (*a*) 2,504,273 shares purchased from W. C. Durant, as hereinafter recited.
   (*b*) 122,095 shares purchased from Syndicate, as hereinafter recited.
   (*c*) 824,179 shares loaned by Du Pont American Industries, Inc.
   (*d*) 549,453 shares loaned by Chevrolet Motor Co.

   Out of a total of 60,000 shares of no-par common stock of the Du Pont Securities Co. which the Du Pont and Chevrolet companies received as above stated, 20,000 shares were paid as a commission to the purchasers of this bond issue, which covered the complete cost of financing.
4. Du Pont Securities Co. purchased (*a*) 2,504,273 shares of General Motors common stock from Mr. Durant, paying him therefore $23,790,600 in cash and 40,000 shares of the Du Pont Securities Co. common stock of no-par value; (*b*) also 122,095 shares of General Motors Corporation common stock from a syndicate in which the Du Pont and Chevrolet companies and W. C. Durant were interested, paying therefor $2,163,557 in cash, all of which latter stock has since been sold.
5. A few weeks ago, the Du Pont American Industries, Inc., purchased from W. C. Durant his 40,000 shares of common stock of the Du Pont Securities Co., paying him therefor 230,000 shares of General Motors Corporation common stock.

Summary: Summarizing the above, the Du Pont Securities Co. owns outright upwards of 2,500,000 shares, and has borrowed 1,373,632 shares of General Motors common stock from the Du Pont and Chevrolet companies. . . .

By conversion of General Motors common stock for Chevrolet Motor Company stock, this company (E. I. Du Pont de Nemours & Co.) has now acquired about two-thirds ownership in the Chevrolet Motor Company, whose assets consist essentially of General Motors Corporation common stock. . . .

Du Pont Securities Co. now has outstanding: (*a*) $20,000,000

eight per cent collateral-trust bonds due November 22, 1921; (*b*) $7,000,000 in eight per cent cumulative voting preferred stock ($4,200,000 of which is owned by Du Pont American Industries, Inc., and $2,800,000 by the Chevrolet Motor Co.); (*c*) 100,000 shares of no-par non-voting common stock, of which 64,000 shares are owned by Du Pont American Industries, Inc., and 16,000 shares by the Chevrolet Motor Co., the remaining 20,000 shares being owned by the underwriters of the bond issue.

On December 31, 1919, the Du Pont interests had owned directly or through subsidiaries the equivalent of 4,484,560 shares of no-par value common stock of the General Motors Corporation; as a result of their acquisitions of 1920, their holdings were increased to more than 7,000,000 shares out of the total of 20,538,345 shares of common stock issued and outstanding.[1] In addition, the Du Ponts were associated to some extent with the British and British-Canadian interests that had subscribed to 1,800,000 shares of the General Motors common stock offering of 1920.[2] The previous Durant-Du Pont control of the General Motors Corporation had not rested upon actual ownership of a majority of the common stock.[3] Mr. Pierre S. Du Pont, in a letter to the writer under date of March 10, 1925, declared:

I do not believe that the Du Pont Company and Mr. Durant ever had an actual majority of shares but they, together with their following, that is, investors who were willing to trust the management of the company to them, undoubtedly represented the large majority.

By the end of 1920, by virtue of the larger and still growing number of stockholders, and by reason of the more active stock-market character of the common stock, conditions

[1] See annual reports of E. I. Du Pont de Nemours & Co., for 1919 and 1920, and letter of Mr. Irénée Du Pont, dated May 1, 1921, cited in the *Commercial and Financial Chronicle*, vol. 112, p. 2087.

[2] Annual report of E. I. Du Pont de Nemours & Co., for 1922.

[3] The employment of the Chevrolet Motor Co. (Delaware), as a holding company for General Motors common stock enabled those in control of that company, which did for a time hold a majority of General Motors common stock, to function as the majority interest in the General Motors Corporation.

were much more favorable to the control of the Corporation by a large, closely held minority interest than they had been previously. The growth in the total number of General Motors stockholders of all classes between 1917 and 1923, inclusive, was as follows:[1]

1917	2,920	1921	66,837
1918	4,739	1922	65,665[a]
1919	18,214	1923	68,063
1920	36,894		

[a] The number of common stockholders in 1920 and in 1921 is not known; in 1922 there were 44,000 common stockholders, 37,000 of whom owned less than 100 shares, and in 1923, there were 46,587 common stockholders, 31,812 of whom owned less than 100 shares. The Du Pont holdings were adequate, therefore, for the exercise of effective control of the corporation.

14. Liquidation and Operating Reorganization

The depression of 1921 was acute, if short-lived; and, as in the case of many another American enterprise that had expanded in undisciplined fashion during the boom period just preceding, the General Motors Corporation made the period of liquidation the occasion for a thoroughgoing housecleaning.

No apologies were voiced by the management for the previous expansion program:

> . . . the troubles of the past years were not related to an ill-financed expansion program or to delay in receiving the proceeds of financing. It is certain that the funds provided before the close of the year 1920 were sufficient to carry out the whole program and also to finance new business offered during the year 1921 and the first half of the year 1922. It is equally certain that disregard for control of inventories and purchase commitments cost the Corporation a very large sum of money, of which the greater part might have been saved by proper safeguards in Divisions now differently managed. Further, it is important to know that the financial misfortunes of the Corporation in the past were only slightly related to the manufacture and sale of its products, but that these misfortunes were directly related to loose and uncontrolled methods which are now corrected.[2]

With respect to one element of the program, however, and

[1] For the last quarter of each year — from the annual reports of the General Motors Corporation.

[2] President Du Pont in the Corporation's annual report for 1922.

one that developed into a veritable fiasco, President Du Pont placed the blame squarely on the shoulders of Durant: the Samson tractor enterprise.

The Corporation had entered the business of manufacturing automotive farm tractors in 1917, following the lead of Henry Ford & Son. By October 31, 1920, it had invested nearly $30,000,000 in the Samson tractor plants. After the product had been finally developed, it was found that it could not be marketed profitably at the announced price of $650; and prices were raised only to discover that sales could not be made in competition with lower-priced tractors.[1] Despite increasing operating losses, which aggregated $12,000,000 in four years, commitments had nevertheless been made in 1920 for an output of 130,000 tractors. The liquidation of these commitments and of the division's inventories resulted in a loss of more than $21,000,000; and the Corporation retired from the tractor field after net operating and liquidation losses aggregating more than $33,000,000.[2] The tractor venture had been initiated and administered by Durant, according to President Du Pont.[3]

Operating deficits during 1920 and 1921 were confined to only a few of the divisions, but nearly all of them suffered large inventory losses. In all, the Corporation was forced to write off more than $90,000,000 from its valuation accounts and to absorb operating deficits of more than $15,000,000.[4] Large as were these book losses, it is interesting to observe that the net profits of the three years, 1919, 1920, and 1922, were amply sufficient to absorb them and to leave a comfortable margin of net gain.

A careful examination of the Corporation's affairs disclosed the fact that ten out of its thirty-four operating divisions had been responsible for nearly two-thirds of its gross losses, and that the other twenty-four, on the whole, had been satisfactorily conducted. In the table below, which shows the relative importance of the two groups, the latter is labeled Group I and the former, Group II.[5]

[1] Annual report for 1922. [2] *Ibid.* [3] *Ibid.* [4] *Ibid.* [5] *Ibid.*

TABLE 36. RELATIVE IMPORTANCE OF GENERAL MOTORS OPERATING DIVISIONS BY GROUPS, 1920–22

YEAR	GROUP I		GROUP II	
	Net Sales	Net Profits	Net Sales	Net Profits
1920	$362,409,005	$68,525,545	$204,911,599	$18,336,690
1921	208,438,291	22,802,537	96,048,952	15,330,938 (*d*)
1922	296,756,778	59,078,448	161,713,088	11,007,517
	$867,604,074	$150,406,530	$462,673,639	$14,013,269
Inventory adjustments, losses, and extraordinary "write-offs" (Deduct)		36,290,020		54,267,963
Operating losses of 1921 before extraordinary adjustments				15,330,938 (*d*)
Net gain or loss		$114,116,410		$40,254,654 (*D*)

(*d*) Operating deficit, deduct once.
(*D*) Total deficit for Group, net.

The divisions of Group II included, among others, the Oakland, Oldsmobile, Sheridan, and Scripps-Booth passenger-car units, and the Samson Tractor division. The Oakland and Oldsmobile divisions were radically reorganized; the Sheridan and Scripps-Booth enterprises were liquidated and discontinued;[1] and the Samson plants, as noted before, were diverted to automobile manufacture. In order to release for other uses much of its investment in the General Motors Building, Detroit, which had been constructed at a total cost of $20,786,000, the Corporation organized a subsidiary, the General Motors Building Corporation, which sold to S. W. Strauss & Co. an issue of $12,000,000 of seven per cent serial bonds secured by a first mortgage on the building and by an agreement with the General Motors Corporation whereby the latter leased the building at an annual rental sufficient to provide the interest and retirement requirements of the bond issue.[2]

[1] Cf. annual report for 1922, and *Commercial and Financial Chronicle*, vol. 112, p. 2310, and vol. 113, pp. 2084 and 2317. The Sheridan division had been organized in 1920 and produced 1796 vehicles in 1921; the Scripps-Booth Corporation had produced 8128 cars in 1919; 8848 in 1920; 3056 in 1921. (From the records of the Corporation.)

[2] Cf. *Commercial and Financial Chronicle*, vol. 113, p. 2189.

In September, 1921, new operating policies were announced by the Corporation.[1] The executive offices were removed from New York to Detroit. A close control over inventories and over capital expenditures was inaugurated by means of a centrally administered budget system. Intercompany cash remittances, which had previously caused a continuous 'float' of approximately $10,000,000, and segregated cash reserves and balances, which had been previously controlled by the various divisions without regard for the requirements of other units or of common needs, were replaced by a system of debit and credit book entries and centralized administration of all cash balances.[2] A number of the smaller manufacturing units were consolidated, and various inter-divisional bodies were established to integrate the policies of the different divisions with respect to products, sales, purchasing, advertising, and other matters. The program of coördinated but decentralized administration of the Corporation's numerous activities thus formally initiated was developed in detail in the years immediately ensuing. On the basis of its own past experience and of that of others, the Corporation established systems of forecasting and definite, though flexible, standards of capital investment, inventory requirements (physical as well as financial), 'normal' rates of profits to be attained, and fixed and varying costs — all measured, chiefly, by volume of business. Along with the exercise of these quasi-scientific statistical tools of centralized control, however, it maintained or increased the operating autonomy of its various divisions: each retained its own personnel and its own plants; and each retained control of its own policies, subject only to the veto of the president of the Corporation.[3]

[1] *Commercial and Financial Chronicle*, vol. 113, p. 2189.

[2] Cf. series of articles by officers of the General Motors Corporation cited in the first section of this chapter.

[3] See pamphlet published by the Corporation, entitled *Financial Control Policies of General Motors*, which reproduces a paper read by Albert Bradley, assistant treasurer, before the American Management Association in March, 1926.

15. Manufacturing Expansion

The crisis and depression of 1920–21 were followed by a recovery as rapid, unexpected, and complete as the depression had been acute. In each of the early months of 1922, the sales of General Motors vehicles were more than double those of the corresponding months of the preceding year; in June, the output of the Corporation reached a new monthly record, which was broken again in November. By the middle of the year, the Corporation had paid off all its bank loans, of which $48,974,996 had been outstanding six months before, and of which $82,784,824 had been outstanding on October 31, 1920.[1] In 1923 the Corporation brought out radically improved models in each of its lines of cars, and its output, sales, and profits, as was the case, indeed, with the automobile industry as a whole, rose above all previous levels. The following table, in which the Corporation's sales of cars and trucks are presented by months for the years 1919 to 1923, inclusive, reflects both the sharpness of the preceding slump and the rapidity and fullness of the recovery.

Table 37. Sales of General Motors Vehicles by Months, 1919–23 *

Month	1919	1920	1921	1922	1923
January	25,038	34,313	6,151	16,088	49,162
February	25,936	33,864	8,912	20,869	55,427
March	29,844	42,504	13,686	34,082	71,669
April	32,991	42,183	17,900	40,474	75,822
May	39,130	42,653	17,793	46,736	75,393
June	34,710	46,852	27,474	48,541	69,708
July	31,720	45,479	18,859	33,772	51,634
August	31,986	32,899	23,049	42,840	65,999
September	33,437	28,796	24,315	35,443	69,081
October	41,847	18,302	23,876	40,815	86,936
November	36,329	12,798	17,594	50,232	66,256
December	28,770	12,432	15,190	46,871	61,468
	391,738	393,075	214,799	456,763	798,555

* From the records of the Corporation.

[1] Annual report for 1922.

Nearly all of the Corporation's branches shared in this revival and growth, but the expansion of the Chevrolet division, producer of its lowest-priced vehicles, was most striking. The distribution of the Corporation's sales among its vehicle divisions for the years 1919 to 1923, inclusive, is summarized in Table 38; and its aggregate output, financial volume of sales, and net profits for these years are presented in Table 39.

TABLE 38. GENERAL MOTORS VEHICLE SALES BY DIVISIONS, 1919–23 *

DIVISION	1919	1920	1921	1922	1923
Passenger cars					
Buick	119,853	116,213	83,888	135,501	218,286
Cadillac	19,851	19,790	11,130	22,021	22,201
Chevrolet	132,710	144,502	75,667	240,390	464,800
Oakland	54,451	37,244	12,661	20,853	35,974
Oldsmobile	33,345	26,241	20,245	21,216	33,356
Commercial cars					
Chevrolet	2,632	4,938	1,489	2,932	15,326
G M C Truck	7,730	5,137	2,760	5,277	6,968
Oldsmobile	7,782	8,383	466	1,218	1,497
Totals					
Passenger cars	360,210	343,990	203,591	442,981	774,617
Commercial cars	18,194	18,458	4,715	9,427	23,791
Miscellaneous [a]	13,334	30,627	6,493	4,355	147
Grand totals	391,738	393,075	214,799	456,763	798,555

[a] Discontinued lines.
* From the records of the Corporation.

TABLE 39. GENERAL MOTORS OUTPUT, SALES, AND PROFITS, 1919–23 *

YEAR	OUTPUT	NET SALES	NET PROFITS
1919	391,738	$509,676,694	$60,005,484
1920	393,075	567,320,604	37,750,375
1921	214,799	304,487,243	38,680,770 [d]
1922	456,763	463,706,733	51,496,135
1923	792,555	698,038,947	62,067,526

[d] Deficit.
* From the records of the Corporation; profits include earnings of 'unconsolidated' subsidiaries only to the extent of dividends received.

At the end of 1923, the General Motors Corporation looked forward, with the completion of certain unfinished construction projects, to a manufacturing capacity of 1,300,000 cars and trucks a year.[1] Its volume of business in the year just then ended had been the largest in its history; its motor-car products had been extensively remodeled, and realigned with respect to price; its manufacturing operations now included the production of much of the materials and parts required for its chief products. Through the successful financial intermediation of the General Motors Acceptance Corporation and by other means, its sales organization had been greatly improved. Its foreign subsidiaries (both manufacturing and selling companies) were growing in importance. And its financial condition, with an excess of current assets over current liabilities of more than $140,000,000, was one of great strength. The keynote of the Corporation's policies, therefore, as reflected by its annual reports of 1923 and 1924, was one of stabilization. Thus:[2]

> The problem from the operating standpoint has become one of increased efficiency in management and greater refinement in product. . . .
>
> In the earlier history of the Corporation demand so far exceeded supply that very little consideration was needed on that point. In 1921 a definite policy was adopted. The Corporation should establish a complete line of motor cars from the lowest to the highest price that would justify quantity production. . . .

And again:[3]

> The motor car industry . . . has now certainly passed the point where tremendous annual increases are possible. In 1909 production increased 100 per cent over 1908; in 1923 the increase was only 55 per cent; 1924 produced fewer cars than 1923; while in 1925 a reasonable gain is anticipated. The gain will not be tremendous; the days of immense increases are past. . . . The Corporation's plans do not contemplate such increases.

The year 1924 was one of moderate recession in the whole automobile industry; the output and profits of the General Motors Corporation each fell off by about 26 per cent; and

[1] Annual report for 1923. [2] *Ibid.* [3] *Ibid.*, 1924.

this accounts, no doubt, for the sober note sounded in the last few lines quoted from the Corporation's 1924 report. The gains of the next three years, however, surpassed all expectations; and, far from resting content with a modest rate of growth, the Corporation greatly expanded its plant capacity, made a bid of $124,650,000 cash for Dodge Brothers, Inc., added two new lines of passenger cars, reorganized its truck manufacture, absorbed the Fisher Body Corporation, and vigorously expanded the operations of its parts-producing and other branches (including, particularly, the manufacture of the Frigidaire electric refrigerator, which is now produced in greater volume than any other similar device). Both in 1925 and in 1926, the Corporation's automobile output and financial volume of business reached new high levels; but its most striking gains took place in the volume of profits. The latter clearly reflected the new manufacturing efficiency that the Corporation had been progressively developing since 1922. In 1925, with output and dollar-sales exceeding those of 1923 (the best previous year) by approximately 5 per cent, net profits rose by more than 73 per cent; and in 1926, when output and sales recorded a further increase of 47 and 44 per cent, respectively, over those of 1925, net profits again displayed a disproportionate gain, rising by more than 65 per cent over those of 1925. In 1927, when the aggregate American motor-vehicle output suffered a decline of 20 per cent, General Motors scored further substantial gains. The Corporation's output, sales, and profits for the four years ended in 1927 are summarized below:[1]

Year	Output	Net Sales	Net Profits*
1924	587,341	$568,007,459	$45,330,888
1925	835,902	734,592,592	106,484,756
1926	1,234,850	1,058,153,338	176,085,144
1927	1,562,748	1,269,519,673	238,319,009

* Net earnings available for dividends; does not include earnings of 'unconsolidated' subsidiaries except to extent of dividends received.

[1] Annual reports for 1925, 1926, and 1927.

The part played by the Chevrolet division, producer of the Corporation's low-priced car, in this expansion of output, may be seen from the following figures:[1]

Chevrolet output:

1924	314,733
1925	512,309
1926	732,145
1927	1,001,142

Despite the fact that this product was manifestly competing with the Ford car (the small price difference between the two vehicles was partly compensated for by the additional equipment provided with the Chevrolet), President Sloan of the General Motors Corporation denied, though somewhat equivocably, the intention of the Corporation to dispute the lowest price-field with the Ford Motor Company. In an address to a convention of publicity men on September 27, 1927, President Sloan declared:[2]

> If the past is any indication of the future, the new Ford car will be a car that will appeal to a great mass of people. . . .
>
> General Motors is in quite a different position. General Motors' idea is to make a car of greater luxury than Ford — a car that properly belongs to the next higher class. . . .

The object of the Ford Motor Company's new car, however, be it noted, is precisely to yield greater luxury than the old. Mr. Sloan, moreover, did not fail to remark:

> To make a long story short, it seems to me that both Ford and General Motors are governed by the same economic principles: viz., to give the greatest possible value in their respective price classes.
>
> There is absolutely no reason why General Motors cannot to-day give a greater per dollar value than any one in the world.

Of the Corporation's various manufacturing divisions, only the truck branch had failed to make substantial gains. The field of the motor bus, in particular, had been preëmpted by competitors, while the Corporation's passenger-car divisions had surpassed the truck unit in the field of light commercial vehicles. In September, 1925, the Corporation

[1] Annual report for 1927.

[2] Quoted in the *Detroit News* of October 2, 1927.

transferred the assets of its truck division, valued at about $11,000,000, and some $6,000,000 in cash, to the Yellow Cab Manufacturing Company, a large independent truck-producer.[1] The latter was reorganized as the Yellow Truck & Coach Manufacturing Company, its entire common stock issue, 800,000 shares of no-par value, going to the General Motors Corporation. The stockholders of the predecessor company received $15,000,000 par value of seven per cent preferred stock, and $6,000,000 par value of Class B stock in the new enterprise; the latter stock was given equal voting power with common, and preference over the latter for three years with respect to dividends of seven and one-half per cent.[2] In 1926 this Company realized about $14,000,000 in cash from the sale of $7,000,000 par value of its Class B stock; the issue was underwritten by the General Motors Corporation, which subscribed to $4,045,500 par value of the offering.[3] The unsatisfactory character of the Company's operations during 1926 has led to rumors of its impending consolidation with the Corporation.

16. Results of Recent Financial Operations

The ambitious merger and combination projects that marked the history of the General Motors enterprise up to 1921 have played a relatively small rôle in the Corporation's recent history. The only important acquisition of the last half-dozen years has been that of the Fisher Body Corporation, which was absorbed in 1926, but control of which had been acquired in 1919.

The Fisher Body Corporation had been incorporated in New York on August 21, 1916, to combine into an operating and holding company several body-manufacturing enterprises that had been organized by the same interests in 1908, 1910, and 1912. Until very recent years, virtually all automobile producers purchased 'bodies' from such independent enterprises; and the original Fisher Companies, financed largely through reinvestment of earnings, had ex-

[1] Annual report of 1925. [2] *Ibid.* [3] *Ibid.*, 1926.

panded rapidly. In 1919, as already noted, the Fisher Body Corporation increased its capitalization from 200,000 shares to 500,000 shares of common stock, selling the increase to the General Motors Corporation at $92 a share, and, at the same time, entering into an agreement with the latter whereby virtually all of the General Motors body requirements were to be supplied by the Fisher company at cost plus 17.6 per cent.[1] This contract was a very profitable one for the Fisher company; and the volume of its profits probably had much to do with the reluctance displayed by the minority interests, which were closely held,[2] in agreeing to dispose of their holdings to the General Motors Corporation. Such an agreement was made, however, in the spring of 1926. In return for their 39.92 per cent interest in the Fisher Body Corporation, the minority stockholders received 664,720 shares of the common stock of the General Motors Corporation (at the rate of one and one-half shares of the former to one share of the latter).[3] The sale took place as of June 30, 1926, and the General Motors Corporation immediately took over the physical assets of the Fisher company. The net worth of the Fisher Body Corporation on March 31, 1926, was $92,277,010, including intangible assets of $3,405,614; its net earnings in 1925 aggregated $27,057,425.[4] The minority interests exchanged a book equity of approximately $36,836,982 in the Fisher Body Corporation for a book equity of approximately $57,283,687 in General Motors, receiving 11.46 per cent of the latter's entire common-stock issue.[5] At this rate the Fisher Body Corporation was valued at about $143,000,000; its 1925 earnings, it may be noted, were equal to a return of 18.9 per cent on

[1] See Standard Statistics Company, Bulletin F 11, and annual report of General Motors Corporation for 1919.

[2] Chiefly by the six Fisher brothers and by Louis Mendelssohn.

[3] General Motors' listing application to the New York Stock Exchange, June 1, 1926.

[4] *Ibid.*

[5] Four of the Fisher brothers, Charles T., Fred J., Lawrence P., and William A., were elected to the Corporation's board of directors.

this valuation. On the other hand, the *market* value of the General Motors stock issued for only 39.92 per cent of the Fisher capitalization was approximately $130,000,000.

The dividend policy of the General Motors Corporation in recent years has been marked by great liberality. In 1924, as we have noted, the Corporation simplified its capital structure, consolidating its four types of preferred and debenture stocks into a single issue of seven per cent cumulative preferred stock, and substituting one share of no-par value common stock, capitalized on its books at $50 a share, for each four shares of the previous no-par value common which had been capitalized at $10 a share.[1] The regular dividend rate of $6 a share on the new common stock was soon multiplied by special disbursements, causing the market value of the stock to soar. In September, 1926, several months after the regular rate had been increased to $7, a 50 per cent stock dividend was declared, and the new $7 rate, augmented by special dividends, was retained. In the boom market of 1926 and 1927, the increased number of shares did not prevent the stock from again reaching prices of $250 and more a share; and another 'split-up,' this time the substitution of two shares of $25 par value for each share of no-par value common stock, was authorized on September 12, 1927. In the meantime, in February, 1927, in order 'to strengthen the Corporation's cash position,'[2] an issue of $25,000,000 par value of its seven per cent preferred stock was sold, through J. P. Morgan & Co., at $120 a share. This issue, in view of the Corporation's enormous cash resources, evidently aroused critical comment, for President Sloan felt called upon to justify it in a special letter to the stockholders.[3] Between 1922 and 1927, inclusive, the cash dividend disbursements of the General

[1] The provisions of the new seven per cent preferred stock were noted in Section 1 of this chapter.

[2] President Sloan, in a letter to the stockholders, June 13, 1927.

[3] The Corporation had cash balances, sight drafts, and marketable securities aggregating $147,471,820 on December 31, 1926.

Motors Corporation aggregated $405,665,914, of which the common stockholders received $360,682,070. During 1927 alone the Corporation's payments to its common stockholders totaled $134,836,081, a greater sum than had ever before been paid in a single year on the common stock of an industrial enterprise. General Motors' profits in 1926 and 1927 exceeded those of any other manufacturing company.

The leading executives, lesser salaried officials, and ordinary employees have been permitted to share in varying measure in the recent prosperity of the Corporation. Under a bonus plan inaugurated in 1918, ten per cent of the amount by which the net earnings of the Corporation exceeded seven per cent of the invested capital was employed annually for five years in purchasing General Motors common stock on the open market for gratuitous distribution to employees who, 'by their inventions, ability, industry, loyalty, or other exceptional service' contributed in special degree to the Corporation's success.[1] In 1923, this plan was modified to apply chiefly to the Corporation's junior officials, its appropriations, determined as indicated above, being reduced to five per cent; and separate provision was made for the senior executives. About seventy of the latter were invited to form a Managers' Securities Company, to which they contributed $5,000,000 in cash in return for the Company's entire common stock; the General Motors Corporation agreed to contribute annually to this Company, for a term of eight years, a sum equal to five per cent of the amount by which the Corporation's earnings should exceed seven per cent of its invested capital, these contributions to be invested in General Motors common stock.[2] To provide the Managers' Securities Company with initial holdings of 2,250,000 shares, the Corporation offered to purchase common stock from its stockholders at $15 a share. Since

[1] Annual report of the Corporation for 1918.

[2] Annual reports of General Motors Corporation and E. I. Du Pont de Nemours & Co., for 1923.

virtually no stock was offered by others, E. I. Du Pont de Nemours & Co., as the Corporation's largest stockholder (it owned about thirty-six per cent of the outstanding common stock at the time) agreed to supply this amount.[1] This it did by causing its subsidiary, the General Motors Securities Company, the sole assets of which consisted of 7,500,000 shares of General Motors common stock, to increase *its* capital stock, and to sell the increase, amounting to thirty per cent of its total common stock, to the Managers' Securities Company in return for $4,950,000 cash and $28,800,000 of the latter's seven per cent cumulative preferred stock.[2] The leading executives of the Corporation thus acquired a thirty per cent interest in 7,500,000 shares of General Motors common, while the Du Pont company retained entire control of its General Motors holdings. By reason of the large payments of the General Motors Corporation to the Managers' Securities Company in recent years, and by reason of the great market appreciation in the value of the Corporation's common stock, most of the Corporation's leading executives have become exceedingly wealthy men. It is expected that this plan will be renewed at its expiration in 1930.[3] The ordinary employees of the Corporation are entitled to invest twenty per cent of their annual wages, but not to exceed $300 a year, in a Savings and Investment Fund, to which the Corporation contributes a bonus of fifty per cent of the savings (one hundred per cent prior to 1922), in addition to six per cent interest.[4] Savings withdrawn for home-purchasing are entitled to the bonus; and an extra payment of two dollars annually for five years is made to employees who invest the proceeds of the Fund in the Corporation's seven per cent preferred stock.[5] All the employees of the General Motors Corporation and its subsidiaries are protected by a Group Life Insurance Policy of

[1] *Ibid.* [2] *Ibid.*

[3] *Commercial and Financial Chronicle*, vol. 124, p. 2287.

[4] See letter of President Sloan to the stockholders, March 12, 1927.

[5] *Ibid.*

$1000 per individual, written without medical examination, the costs of which are shared by the employees and the Corporation. The extent to which the various classes of employees have participated in the Corporation's operating profits during the six years ended in 1927 is summarized in Table 40.[1]

TABLE 40. PARTICIPATION OF EMPLOYEES IN NET OPERATING PROFITS OF GENERAL MOTORS CORPORATION, 1922–26

YEAR	EMPLOYEES' BONUS [a]	MANAGERS' SECURITIES COMPANY [b]	EMPLOYEES' SAVING AND INVESTMENT FUND [c]
1922	$1,341,997		$1,477,216
1923	1,906,495	$1,876,119	1,980,583
1924	785,616	1,140,190	1,991,990
1925	3,969,227	4,633,535	2,355,524
1926	8,274,099	8,274,099	3,461,992
1927	10,488,072	10,488,072	7,214,662
Totals	$26,765,506	$26,412,015	$18,481,967

[a] Amounts appropriated for purchase of General Motors common stock for distribution to deserving employees.
[b] Amounts contributed by the Corporation.
[c] Amounts contributed by the Corporation.

Despite the large cash disbursements to stockholders and employees, the profits reinvested by the General Motors Corporation during the six years ended in 1927 aggregated about $275,000,000. In these six years, the Corporation's net worth increased by $391,500,000, or by more than 100 per cent. More than three-fifths of this increase resulted from reinvested profits, and most of the remainder, from the absorption of the Fisher Body Corporation. The expansion of General Motors in recent years, therefore, has been mainly due to the striking growth in its manufacturing operations, rather than to wholesale acquisitions of independent enterprises. In 1925, however, the Corporation narrowly missed absorbing another large automobile producer — Dodge Brothers, Inc. At the invitation of the latter's owners, J. P. Morgan & Co., acting for the General

[1] From the annual reports of the Corporation, 1922 to 1927, inclusive.

Motors Corporation, submitted two bids for this enterprise: a cash bid of $124,650,000, and a bid of $59,000,000 cash and $90,000,000 of non-interest-bearing notes maturing serially over a period of nine years.[1] The enterprise was sold, however, to a syndicate of investment bankers, headed by Dillon, Read & Co., who offered $146,000,000 cash.[2]

At the beginning of 1928, the General Motors Corporation occupied a commanding position in the automobile industry of the world. In the year just ended, it had produced forty-four per cent of all of the motor cars manufactured in the United States and Canada, as against less than seventeen per cent only three years before. Its parts-producing branches not only supplied much of the needs of its own large variety of motor vehicles, but also conducted an extensive business with independent manufacturers. A joint policy of integrating and diversifying its industrial interests had accompanied its recent ascendancy. Approximately one-half of the unrivaled volume of its profits in 1927 had been derived from other sources than its motor-car operations as such — from the production of components, refrigerators, lighting and power plants, etc., and from its banking and insurance business.[3] The balance-sheet of the Corporation on December 31, 1927, presented on page 224, valued its net book assets at $760,000,000; the market value of its securities on March 9, 1928, was 2.77 billions.

17. Summary of the Financing of General Motors

William C. Durant was a vigorous promoter and salesman rather than an operating executive;[4] and the career of the

[1] Formal announcement of General Motors Corporation, April 10, 1925, quoted in the *Detroit News* of April 11, 1925.

[2] Announcement by Clarence Dillon quoted by Associated Press April 8, 1925.

[3] Cf. annual report for 1927.

[4] This characterization of Durant accords with that made by every member of the existing General Motors organization whom the writer has interviewed. 'Durant is the greatest salesman in America,' is the state-

Assets	
Real estate, plant, etc.....	$480,473,509
Investments in affiliated and other companies not consolidated.....	98,262,014
Good-will, patents, etc.....	43,687,708
Deferred expenses.....	12,436,188
Treasury stock.....	31,338,034
Total fixed assets.....	**$666,197,453**
Cash in banks and on hand.	$132,272,218
United States securities....	75,542,698
Other marketable securities	361,282
Sight drafts and C.O.D. items.....	14,649,097
Notes receivable.....	1,560,678
Trade acceptances and accounts receivable, less reserve for doubtful accounts.....	31,646,089
Inventories.....	172,647,716
Prepaid expenses.....	3,600,345
Total current assets.....	**$432,280,123**
Total assets.....	**$1,098,477,576**

Liabilities	
Seven per cent preferred...	$130,835,700
Six per cent preferred.....	1,713,400
Six per cent debenture.....	2,366,900
Common stock $25 par value, 17,400,000 shares..	435,000,000
Total capital stock.....	**$569,916,000**
Interest of minority stockholders in subsidiaries...	2,603,976
Surplus.....	187,819,083
Total capital stock and surplus.....	**$760,339,059**
Accounts payable.....	51,828,549
Taxes, payrolls, accruals...	27,236,070
Income taxes, United States and foreign.....	35,224,309
Accrued dividends on preferred and debenture st'ks	1,567,219
Extra dividend on common stock.....	43,500,000
Total current liabilities..	**$159,356,147**
Reserves	
Real estate, plant, etc....	$141,872,940
Employees' investment fund.....	6,316,320
Employees' saving fund..	14,933,834
Bonus to employees.....	11,715,710
Sundry contingencies....	3,943,566
Total reserves.....	**$178,782,370**
Total liabilities.....	**$1,098,477,576**

General Motors combination, until very recent years, has largely reflected his personality. His temperament and his unbounded confidence in the automobile industry led him to seek rapid growth. He desired a wide array of 'makes' at the outset in order to keep his eggs distributed in many baskets; he came to desire a balanced line of parts and accessory enterprises; and, whenever the funds of his organization permitted or whenever suitable enterprises could be acquired by exchange of securities, he was ready to expand by acquisition. And he was content to rely for his control upon the support of large stockholders and upon his ability to 'trade on the equity' of the 'uncontrolling stockholders,'[1]

ment attributed to E. R. Stettinius, of J. P. Morgan & Co., by W. A. P. John, in a biographical article (*loc. cit.*).

[1] These suggestive expressions are employed and developed by Hastings Lyon in his *Corporation Finance*, Houghton Mifflin Company, 1916.

rather than upon actual ownership of a majority stock interest. In all its larger aspects, the present General Motors Corporation is of Durant's making.

In its first two years of existence, the General Motors Company acquired control of some twenty automobile and parts-producing companies. In addition to the liberal issue of securities, the Combination paid out $6,347,993 in cash for such acquisitions, while it realized only $4,504,306 in cash from its sale of stock. It is clear, then, that no large amounts of working capital were obtained by the sale of securities, but that, on the contrary, current assets and earnings were employed for fixed-capital expansion. The net sales of the Combination in this two-year period totaled $78,460,054. It was able to handle such a large volume of business despite its small provision for working capital for reasons already considered: the prevailing business practices in the industry permitted advance deposits on dealers' orders, sales for cash immediately upon completion of the short process of assembling, and credit from suppliers; and its current earnings were large. The working-capital burden, in other words, was largely shifted to others.

The profits of the Combination during its first two years aggregated $19,339,865, of which $18,279,297 was reinvested in the business. In order to realize its primary object — the production of a large variety of automobiles — the bulk of these earnings was employed for fixed-plant expansion and for the large inventories required by its eleven 'makes' of cars. Thus, in the single year ended September 30, 1910, when it realized less than $2,000,000 from the sale of securities, and when new acquisitions costing only $1,229,230 in cash and preferred stock were made, the Combination's fixed-plant investment rose from little more than $6,000,000 to more than $14,000,000, and its inventories rose from $8,520,920 to $19,802,483. Because of its unduly large diversion of current earnings and working capital into fixed plant and inventories, the Combination became involved in financial difficulties at the end of its second

year; and a $15,000,000 note-issue, from which it realized about $12,500,000 in cash, was floated.

The bankers' voting trust during the next five years brought financial stability, though at some sacrifice of industrial expansion. The number of 'makes' was reduced to six, additional issues of capital stock for properties were small, and profits were largely devoted to the attainment of a liquid financial condition. This last was not difficult, for we have noted how modest were the ordinary working-capital requirements of automobile producers. The General Motors Company ended the five-year period with its note-issue retired, with no bank indebtedness, with $15,000,000 in cash, and with a net worth augmented by nearly $20,000,000. The reinvested profits of these five years had totaled $31,351,090, but the bankers had charged $12,531,014 against the surplus account for extraordinary devaluation of plants and inventories.

If we assume that the original invested capital of the General Motors Company consisted of its nominal net worth (represented by capital stock and surplus) on September 30, 1909, less the amount of profits reinvested during the fiscal year ended on that date, we find that 75.86 per cent of the Combination's net worth at the end of 1917 had been derived from reinvested profits, after reducing the latter by the amount of extraordinary surplus charges. (The actual total of reinvested profits constituted more than 87 per cent of the Combination's net worth on December 31, 1917.) Even this striking figure allows nothing for the reinvested profits of the subsidiaries prior to their acquisition (and these accounted for the bulk of their net worth), nor does it include deductions for fictitious or overvalued assets represented by watered stock in the original capitalization.

In the three years, 1918 to 1920, inclusive, new investment from without became the principal source of the Combination's capital expansion; in these three years the net worth increased by $316,551,469, or by 293 per cent.

The sources of this increase may be summarized as follows:

From sale of securities for cash [a]	$132,294,745
From issue of securities for properties [a]	114,737,221
From stock issued for employees' bonus	11,014,880
From reinvested earnings	54,372,843
Added to surplus by adjustment of common stock to $10 book value per share	7,625,180
	$320,044,869
Less preferred stock retired	3,493,400
	$316,551,469

[a] Includes 'paid-in surplus' arising from excess of cash or property value received over par or book value of securities issued therefor.

It is pertinent to observe that the property acquisitions of the General Motors Corporation during these three years consisted principally of enterprises that had built up their net worth largely by reinvestment of profits. We have noted that the Chevrolet and United Motors companies, which were the most important of the acquisitions, had originally issued large amounts of securities — half or more of their initial capitalizations — for promotion services; and that, in spite of this fact, substantially one-half of their net book assets at the time of their consolidation with the General Motors Corporation had been derived from direct reinvestment of their earnings. Such considerations require emphasis because the absorption of going concerns by any enterprise tends to disguise and to minimize the full rôle of reinvested profits as a source of invested capital.

In 1921, operating deficits, dividends, and 'special write-offs' reduced the net worth of the General Motors Corporation by $65,459,057. In the five years following, however, because of a remarkable growth in the operations and manufacturing efficiency of its constituent units, and the resultant increase in profits, the net worth of the Corporation increased by nearly 75 per cent, of which more than two-thirds came from reinvested earnings. The absorption of the Fisher Body Corporation, which accounted for nearly all of the remaining third, is subject to the same comment as that made above with respect to the Chevrolet and United Motors acquisitions.

We have already called attention to the enormous cumulative effect of early promotion 'water' or business misjudgment in the case of the Heany Lamp companies: the $5,908,500 par value of common stock issued for these dubious assets in 1910 (exclusive of the $1,111,000 par value of preferred stock and $112,450 cash also paid for them) now represents more than 2,381,000 shares of the Corporation's $25 par value common stock, with a market value in excess of $320,000,000. The bankers, also, it will be recalled, received a bonus of $5,169,200 par value of preferred stock early in 1911, and exchanged much or most of this for common, offering the latter as a 20 per cent bonus to members of the underwriting syndicate of the note-issue; this stock, too, now represents an enormous interest in the General Motors Corporation. And so with other blocks of securities issued directly or indirectly for promotion and financing services, both in connection with the original formation of the Combination and with subsequent consolidations.

Disregarding all such considerations, and without going behind the formal book figures, we find that of the net worth of the General Motors Corporation on December 31, 1926 — $634,257,318 — approximately 55 per cent had been derived from investment from without by way of cash, property, and services exchanged for securities (including more than $64,290,000 of recognized intangibles); about 41.5 per cent had resulted from the direct reinvestment of profits; and about 3.5 per cent, net, from surplus transactions reflecting realized gains and losses in the value of the Corporation's assets. At the end of 1927, reinvested profits accounted for 47 per cent of the net worth.

Turning now to the working-capital aspects of the Corporation's financing, we may note that it is significant of the essential liquidity of its operations that its borrowings from banks have been due, in nearly all cases, to special causes rather than to the routine nature of its business. Thus, in the three years beginning with 1915, when the difficulties of

the original Combination had been eliminated, the Company was able to finance a large and sharply mounting volume of business without any bank borrowing whatever. The crisis and depression of 1920–21, coming on the heels of its enormous expansion program, caused a great and acute need for banking accommodation, but we have seen how rapidly these loans were repaid. Despite the great growth in the volume of the Corporation's operations in 1925, 1926, and 1927, no sign of bank indebtedness appeared in its financial statements. The short cycle of manufacture, credit from outside suppliers, a manufacturing program attuned to current retail sales, and receipt of cash for its vehicles immediately upon production, make it possible for the Corporation to conduct the vast volume of its operations without any borrowing whatever in ordinary times.

We conclude this review of the financing of the General Motors Corporation by appending tables which reflect in summary fashion various aspects of the Corporation's history: Table 41 lists the record of receipts from sales, net profits applicable to capital stock, and net worth (net equities of capital stock at the *beginning* of each year), by years. Table 42 presents the amounts and disposition of the Corporation's earnings by years. Table 43 gives the percentages of profits to net worth and of profits reinvested, by years. Table 44 compares the ratio of sales to net worth, the percentage of profits to sales, and the percentage of profits to net worth, by years.

TABLE 41. NET SALES, NET PROFITS, AND NET WORTH OF GENERAL MOTORS CORPORATION, BY YEARS *

YEAR [a]	NET SALES [b]	NET PROFITS [c]	NET WORTH [d]
1909	$29,029,875	$9,114,498	$9,684,491
1910	49,430,179	10,225,367	17,679,203
1911	42,733,303	3,316,251	31,639,119
1912	64,744,496	3,896,293	31,456,005
1913	85,603,920	7,459,471	32,570,578
1914	85,373,303	7,249,734	34,407,362
1915	94,424,841	14,457,803	38,176,411
1916	156,900,296	28,789,560	51,477,143
1917	268,973,240	39,075,398	68,058,493
1918	269,796,829	14,825,530	108,058,493
1919	509,676,694	60,005,484	232,635,137
1920	567,320,603	37,750,375	317,349,197
1921	304,487,243	38,680,770 (d)	424,609,962
1922	463,706,733	51,496,135	366,194,136
1923	698,038,947	62,067,526	404,681,063
1924	568,007,459	45,330,888	437,079,270
1925	734,592,592	106,484,756	450,106,879
1926	1,058,153,338	176,085,144	487,016,423
1927	1,269,519,673	238,319,009	634,257,318

(d) Deficit.

[a] The General Motors Corporation was incorporated on October 13, 1916, and succeeded the General Motors Company (New Jersey), which had been incorporated on September 16, 1908. The figures for 1909 and 1910 are for fiscal years ended September 30; those for 1911, for the ten months ended July 31, 1911; figures for 1912 to 1916, inclusive, are for fiscal years ended July 31; the 1917 figures are for the seventeen months ended December 31, 1917; the remaining figures are for calendar years.

[b] Figures for 1909 and 1910 include entire fiscal year's sales of companies acquired during these years; figures for the remaining years include sales of acquired companies only after acquisition by General Motors.

[c] Earnings applicable to the capital stock of General Motors; does not include taxes, interest, or undistributed earnings of 'unconsolidated' subsidiaries.

[d] The figures for net worth represent the net equities of General Motors stockholders at the *beginning* of each year. The figure for 1909 represents the net worth of the Combination at the end of 1909, minus the profits reinvested during that year.

* From the records of the Corporation.

TABLE 42. CASH DIVIDEND PAYMENTS AND REINVESTED EARNINGS OF GENERAL MOTORS CORPORATION, BY YEARS *

YEAR [a]	EARNINGS REINVESTED	COMMON STOCK DIVIDENDS	PREFERRED STOCK DIVIDENDS [b]
1909	$8,696,877		$417,621
1910	9,582,420		642,947
1911	2,474,177		842,074
1912	2,856,082		1,040,211
1913	6,410,937		1,048,534
1914	6,201,055		1,048,679
1915	13,408,839		1,048,964
1916	17,010,437	$10,730,159	1,048,964
1917	27,810,043	9,724,501	1,540,854
1918	1,667,753	11,237,310	1,920,467
1919	38,468,430	17,324,541	4,212,513
1920	14,236,660	17,893,289	5,620,426
1921	65,459,056 (d)	20,468,276	6,310,010
1922	34,889,790	10,177,117	6,429,228
1923	30,408,129	24,772,026	6,887,371
1924	13,027,619	25,030,632	7,272,637
1925	36,909,544	61,935,221	7,639,991
1926	64,508,864	103,930,993	7,645,287
1927	94 373,598	134,836,081	9,109,330
Totals	$357,482,198	$448,060,146	$71,718,108

(d) Deficit.

[a] Fiscal years as in Table 41.

[b] Includes dividends on six per cent preferred, six per cent debenture, seven per cent debenture, and seven per cent preferred, stocks.

* From the records of the Corporation.

TABLE 43. PERCENTAGE OF PROFITS TO NET WORTH AND PERCENTAGE OF PROFITS REINVESTED, OF GENERAL MOTORS CORPORATION, BY YEARS *

YEAR [a]	PERCENTAGE OF PROFITS TO NET WORTH [b]	PERCENTAGE OF PROFITS REINVESTED
1909	94.11	95.42
1910	57.84	93.71
1911	10.48	74.61
1912	12.39	73.30
1913	22.90	85.94
1914	21.07	85.54
1915	37.87	92.74
1916	55.93	59.09
1917	57.05	71.17
1918	13.72	11.25
1919	25.79	64.11
1920	11.90	37.71
1921	9.10 (d)	
1922	14.05	67.64
1923	15.33	49.00
1924	10.37	28.74
1925	23.65	34.66
1926	36.15	36.63
1927	37.57	39.59

(d) Deficit.

[a] Fiscal years as in Table 41.

[b] Net worth at the *beginning* of each of the fiscal periods; the net worth figures employed represent the net equities of General Motors stockholders.

* Based upon the published records of the Corporation.

TABLE 44. GENERAL MOTORS RATIO OF SALES TO NET WORTH, PERCENTAGE OF PROFITS TO NET WORTH, AND PERCENTAGE OF PROFITS TO SALES, BY YEARS *

YEAR *	PERCENTAGE OF PROFITS TO NET WORTH	PERCENTAGE OF PROFITS TO SALES	RATIO OF SALES TO NET WORTH (per cent)
1909	94.11	31.40	310
1910	57.84	20.69	280
1911	10.48	7.76	135
1912	12.39	6.02	206
1913	22.90	8.71	263
1914	21.07	8.49	248
1915	37.87	15.21	247
1916	55.93	18.35	305
1917	57.05	14.48	393
1918	13.72	5.50	250
1919	25.79	11.77	219
1920	11.90	6.65	179
1921	9.10 (d)		72
1922	14.05	11.11	127
1923	15.33	8.89	172
1924	10.37	7.99	130
1925	23.65	14.49	162
1926	36.15	16.64	217
1927	37.57	18.77	200

(d) Deficit.

* Fiscal years as in preceding tables.

* Data based upon the preceding tables. Net worth here means net assets applicable to capital stock at the beginning of each of the years, including intangible assets.

CHAPTER V

OTHER LEADING AUTOMOBILE PRODUCERS

WE have seen that virtually all of the present invested capital of the Ford Motor Company has been derived from the direct reinvestment of profits; and that not far from half of the present net worth of the General Motors Corporation has been similarly derived. In the case of the latter enterprise, moreover, we have noted that the acquisition of full-grown business units which themselves owed much to this source of capital has operated to disguise and to minimize the full rôle of reinvested profits as a source of the Corporation's present net worth. The combined net tangible assets of the Ford Motor Company and the General Motors Corporation at the end of 1926 constituted about 56.7 per cent of the total tangible capital investment of American automobile producers;[1] and of the total combined net worth of the two enterprises on this date, only 27.6 per cent had been derived from original or subsequent investments from without of cash, property, or services (including promotion and financing services). The conditions that have made possible so large a reliance upon reinvested profits for the provisioning of capital have been analyzed. It remains to be seen to what extent other leading producers of automobiles have similarly relied upon direct reinvestment of profits as a source of capital.

Our choice of enterprises for this purpose has been based almost entirely upon present importance in the industry as measured by volume of invested capital, except that several important producers, particularly the Willys-Overland Company and the Chrysler Corporation, have been

[1] The National Automobile Chamber of Commerce, basing its estimate chiefly upon reports from its members, estimated the net tangible invested capital of American automobile producers in 1926 at $2,089,498,325. Cf. *Facts and Figures of the Automobile Industry*, 1927.

omitted from consideration because adequate data respecting their histories have been inaccessible. The enterprises discussed below, however, together with the Ford and General Motors companies, constitute a large majority of the important producers. The combined net tangible assets of all eight producers at the end of 1926 represented nearly eighty per cent of the total tangible capital employed by all American automobile producers.[1]

Our discussion of the six enterprises to be reviewed below will be confined to a bare outline of their financial histories, with emphasis only upon the growth in their net worth; and we shall rely largely upon a purely tabular presentation of the data.

1. The Studebaker Corporation

The present Studebaker Corporation is the immediate successor of an enterprise which, after a long career in the carriage and wagon industry, entered upon automobile production by diverting some of its resources to the new product. The larger part of the present invested capital of the Corporation has been derived from profits reinvested in the business since its entrance into the automobile industry.

The present Corporation was organized on February 14, 1911, to consolidate the Studebaker Brothers Manufacturing Company and the Everitt-Metzger-Flanders Company. The latter had been incorporated in Michigan on August 4, 1908, to produce and sell an automobile known as the 'E M F'. Its operations during the two and one-half years of its existence had been highly successful, resulting in a total output of 23,432 automobiles, in net sales of $21,236,415, and in net profits of $3,214,082. Its net worth on December 31, 1910, was $3,649,258, of which $2,649,258 represented accumulated earnings.[2] The Studebaker Brothers Manu-

[1] See Table 1, above.

[2] A. R. Erskine, president, *History of the Studebaker Corporation*, p. 21 ff., published by the Corporation.

facturing Company had been incorporated in Indiana on March 26, 1868, to manufacture carriages and wagons; in 1905, it had begun to produce a small line of high-priced electric and gasoline vehicles; in 1909, it acquired sales rights to the 'E M F' car; shortly after, it purchased an extensive interest in the Everitt-Metzger-Flanders Company; and in 1911, the two enterprises were merged into the present Corporation.[1]

Unlike other automobile producers, the Studebaker Corporation started operations with a relatively large fixed-plant investment. The net tangible assets of the two predecessors totaled $15,354,121 in value, of which $9,811,990 represented real estate, plant, and equipment.[2] An issue of $13,500,000 par value of seven per cent preferred stock, from which the Corporation realized $8,328,602 in cash, was sold through Goldman, Sachs & Co., to provide working capital.[3] Nevertheless, the Corporation started operations with bank loans totaling $10,257,237.[4] Against the physical assets of the predecessor companies, plus 'good-will' nicely calculated at $19,807,276.64, the Corporation issued $30,000,000 par value of common stock, $2,068,400 of which was returned to the treasury.[5]

The end of the first year found the Company pressed for working capital; and in February, 1912, it funded its bank loans by the issue of $8,000,000 of five per cent ten-year serial gold notes.[6] The next four years, however, brought a great improvement in the Company's financial position: the note-issue was easily retired; net profits of $12,519,607 were reinvested in the business; the bank indebtedness was entirely eliminated; and $2,548,654 was set aside for the retirement of preferred stock.[7]

[1] A. R. Erskine, president, *History of the Studebaker Corporation*, p. 21 ff., published by the Corporation.

[2] Erskine, *op. cit.*, p. 95. [3] *Ibid.*, p. 37 ff.

[4] *Ibid.*, p. 95. [5] *Ibid.*, p. 37 ff.

[6] Commissions and discounts on these notes created a deferred charge of $506,632 on the Corporation's balance-sheet of December 31, 1912.

[7] Annual reports, 1912–15, inclusive.

At the close of the World War, the Studebaker Corporation, like most other automobile producers, initiated a large program of plant expansion; and to fund its current indebtedness, which had again mounted to more than $10,000,000, it sold an issue of $15,000,000 of ten-year seven per cent serial gold notes, dated January 1, 1919. This note-issue was called for redemption at the end of the year, however, and was replaced by an issue of $15,000,000 par value of common stock, which was underwritten at $105 a share.[1] Despite a jump of more than one hundred per cent in its fixed-plant investment during 1919 and 1920, the Corporation succeeded in reducing rather than increasing the volume of its inventories.[2] Hence, it was one of the few automobile producers to escape serious reverses in the crisis and depression of 1920–21. Indeed, and quite remarkably, its output, financial volume of sales, and net profits showed uninterrupted increases between 1918 and 1923. On May 5, 1920, and December 29, 1922, stock dividends of $15,000,000 par value each were declared; and on April 1, 1924, two and one-half shares of no-par value common stock were substituted for each of the 750,000 shares of $100 par value common stock then outstanding. The business of carriage, wagon, and harness manufacture, which the Corporation had maintained in diminishing measure, was discontinued in 1921. The results of the Corporation's operations in very recent years have been somewhat erratic, both output and profits fluctuating irregularly. To maintain and to increase the importance of its position in the industry, the Corporation has recently reduced the prices of its models sharply, bringing most of them into the moderate price class, and has introduced the 'Erskine Six,' a car selling at less than $1000.

The history of the invested capital of the Studebaker Corporation may be briefly related. Its net worth on December 31, 1926, was $119,033,833, made up of the following equities:

[1] Annual report for 1919. [2] *Ibid.*, 1918–23, inclusive.

Seven per cent preferred stock	$7,500,000
No-par value common stock at $40 a share	75,000,000
Surplus	36,533,833
	$119,033,833

During the sixteen years of its operations up to December 31, 1926, its total of reinvested profits, after all surplus charges, was $67,755,322, which accounts for 56.9 per cent of its present net worth. If, however, we exclude the 'good-will' item with which the Corporation started and which it retains unchanged on its books, we may say that 68.3 per cent of the present net tangible capital of the Corporation has been derived from reinvested profits, after reducing the latter by all surplus charges, including financing fees. Most

TABLE 45. OUTPUT, RECEIPTS FROM SALES, NET PROFITS, AND NET WORTH OF THE STUDEBAKER CORPORATION, BY YEARS

YEAR [a]	OUTPUT [b]	NET SALES [c]	NET PROFITS [d]	NET WORTH [e]
1910				$41,431,600
1911	22,555	$28,487,847	$1,653,582	42,144,911
1912	28,523	35,440,327	2,313,245	43,353,852
1913	35,410	41,464,950	1,772,474	43,505,251
1914	35,460	43,444,223	4,441,966	46,608,167
1915	46,845	56,539,006	9,067,425	53,484,607
1916	65,885	61,988,594	8,611,245	58,186,539
1917	42,357	50,147,516	3,500,741	58,819,730
1918	23,864	52,087,997	3,884,195	60,546,374
1919	39,356	66,383,307	9,312,284	79,425,583
1920	51,474	90,652,363	9,822,054	83,267,048
1921	66,643	96,690,644	10,409,691	88,079,744
1922	110,269	133,178,881	18,086,196	99,142,190
1923	145,167	166,153,683	18,342,223	108,133,734
1924	110,240	135,406,055	13,773,869	113,612,603
1925	134,664	161,362,945	16,619,523	116,394,038
1926	111,315	141,536,652	13,042,119	119,033,833

[a] Calendar years.
[b] Of automobiles, only.
[c] Includes the sales of wagon and carriage division up to 1921.
[d] Net profits applicable to capital stock, but before surplus charges.
[e] Net equities of capital stock after all income and surplus deductions at end of each year; includes 'good-will, trade-marks, etc.' valued at $19,807,277 each year.

TABLE 46. DISPOSITION OF NET PROFITS OF THE STUDEBAKER CORPORATION, BY YEARS

YEAR [a]	NET PROFITS [b]	PREFERRED DIVIDENDS [c]	COMMON DIVIDENDS [d]	SURPLUS CHARGES [e]	PROFITS RE-INVESTED [f]
1911	$1,653,582	$708,750			$944,832
1912	2,313,245	930,825			1,382,420
1913	1,772,474	901,075		$275,000	596,399
1914	4,441,966	869,050			3,572,916
1915	9,067,425	830,445	$1,396,580	817,360	6,023,040
1916	8,611,245	767,550	3,000,000	141,763	4,701,932
1917	3,500,741	767,550	2,100,000		633,191
1918	3,884,195	767,550	1,200,000		1,916,645
1919	9,312,284	748,475	2,100,000	2,069,600	4,394,209
1920	9,882,054	710,150	3,937,500	872,940	4,301,464
1921	10,409,691	686,000	4,200,000	710,995	4,812,696
1922	18,086,196	673,750	6,000,000		11,412,446
1923	18,372,223	638,750	7,500,000	361,929	9,841,544
1924	13,773,869	595,000	7,500,000		5,678,869
1925	16,619,523	579,338	9,843,750		6,196,435
1926	13,042,119	542,325	9,375,000	1,778,510	1,346 284
Totals [g]	$144,652,831	$11,716,583	$58,152,830	$7,028,097	$67,755,322

[a] Calendar years.

[b] Net profits applicable to capital stock but before special surplus charges.

[c] The preferred stock, under the Corporation's charter, must be retired at the rate of not less than three per cent of the par value of the amount outstanding each year by purchases in the open market.

[d] Cash dividends. Stock dividends of $15,000,000 par value of common stock were paid in 1920 and in 1922; in 1924, the $100 par value common was replaced by no-par value stock at the rate of two and one-half shares of the latter for each of the former.

[e] Not properly chargeable to the income of the year in which they arise.

[f] After all income and surplus deductions.

[g] Exclusion of fractional dollars gives rise to very slight inaccuracies.

of the remaining portion of present invested capital came from the original investment: the total amount of capital subsequently derived from the sale of stock, less the amount of preferred stock retired, was $12,074,468.[1] The aggregate net profits of the Corporation for the sixteen-year period totaled $144,652,831; dividends on preferred stock took $11,716,583; cash dividends on common stock, $58,152,830; surplus charges, $7,028,096; and the remainder, $67,755,322, was reinvested in the business.

[1] This includes $2,324,468 realized in 1915 from $2,068,400 par value of common stock previously held in the Corporation's treasury, and $15,750,000 realized from $15,000,000 par value of common stock sold at $105 a share in 1919, less $6,000,000 par value of preferred stock retired.

The results of the operations of the Studebaker Corporation are summarized in Tables 45 and 46.[1]

2. Dodge Brothers, Inc.

The sale of the assets of Dodge Brothers, Inc., to a group of investment bankers in April, 1925, for a net cash price of $146,000,000, brought into renewed public notice the extraordinary profits of successful automobile producers. And the feat of Dillon, Read & Co., the principal purchasers, in shifting their investment to the public within two weeks at a gross cash profit of $13,250,000, while retaining for themselves all the voting stock of the enterprise, can only be described as a startling piece of financial legerdemain — and all the more striking because it was effected with the utmost frankness.

Dodge Brothers, Inc., was originally incorporated in Michigan on July 17, 1914, with an authorized capitalization of $5,000,000 of common stock, all of which, save for qualifying directors' shares, was subscribed and paid for in cash by John F. and Horace E. Dodge.[2] For twelve years previous, the two Dodge brothers had been engaged in the manufacture of automobile parts for various producers, notably for the Ford Motor Company. Such was the reputation of their organization that when they announced, in 1914, that they would produce and market a 'Dodge' automobile, they received more than 22,000 applications for dealers' contracts.[3] The Company started operations with the production of a single model of chassis on which several varieties of 'bodies' were mounted; and, like the Ford Motor Company, but unlike most other producers, the Company refrained from enlarging its line of products and from introducing radical annual changes in its vehicles. The original

[1] Both tables were compiled from the annual reports of the Corporation, which, in recent years, have contained summaries of the operations since incorporation.

[2] Articles of incorporation filed with the Michigan Secretary of State.

[3] From data obtained by the writer from officers of the Company.

price of the Dodge touring car was $785; during the post-war period the price rose as high as $1285; at the end of 1924, it was $885.

The operations of the Company were markedly successful from the start. The Dodge car was sufficiently low in price and satisfactory in character to attract and retain a large following. In consequence, like the Ford Motor Company, Dodge Brothers, Inc., was able to concentrate its efforts upon means of enlarging output and economizing manufacturing costs. Within a few years, the Company rose to third place among American automobile producers in unit output of vehicles. Despite a considerable measure of integration of its operations in the interval, the productivity of its factory employees, as measured by physical volume of finished vehicles per worker, more than tripled between 1916 and 1925.[1]

The fixed-capital expansion of the Company was financed entirely by reinvested profits. Even the original capital of $5,000,000 had been chiefly the result of profits accumulated by the Dodge brothers in their parts-making business; and the Company was able to meet its increasing working-capital requirements without any bank borrowing whatever.[2] The net physical assets of Dodge Brothers, Inc., on April 1, 1925, were valued at $80,658,682.[3]

John F. Dodge and Horace E. Dodge died during 1920; and for the next five years the Company was administered by the legal representatives of their heirs. Early in 1925, the latter opened private negotiations with various interests looking to the sale of the enterprise. The Company was first offered to Henry Ford, it is said;[4] then to promoters who wished to combine it with the Packard Motor Car Company, the Hudson Motor Car Company and the Briggs

[1] From a typewritten syllabus issued by Dillon, Read & Co. in April, 1925.

[2] *Ibid.*

[3] This figure reflects a reappraisal; see prospectuses issued by Dillon, Read & Co. in April, 1925.

[4] George B. Hassett in the *Detroit News* of April 1, 1925.

Manufacturing Company (body-manufacturers); then, when two of the tentative constituents of the projected merger refused to join, to the General Motors Corporation.[1] At this point, Dillon, Read & Co., who had been supporting the merger project, offered a cash bid for the Company. After a spirited contest between J. P. Morgan & Co., representing General Motors, and Dillon, Read & Co. — a contest which is said to have started with an initial bid of $90,000,000 — the assets of Dodge Brothers, Inc., were sold to the latter for a gross price of $166,000,000 and a net cash price of $146,000,000: the sellers were permitted to retain $14,000,000 of the Company's cash assets and were given rights to $6,000,000 more of accumulated dividends, these sums reducing the price actually paid by Dillon, Read & Co. to $146,000,000.[2]

The sale took place as of April 1, 1925. If the net worth of Dodge Brothers, Inc., on this date be measured by the net price paid for its assets, plus the cash retained by the sellers, but without allowance for the latter's rights to $6,000,000 more of dividends, the net worth was $160,000,000. In its eleven years of operations, the Company had paid out cash dividends in excess of $29,000,000;[3] and, solely through reinvested profits and through the appreciation in the market value of its business, its net worth had been multiplied thirty-two times.

Dillon, Read & Co. proceeded immediately to reincorporate the Company in Maryland (on April 8, 1925), and to sell to the investing public a sufficient volume of the new Corporation's securities to yield them a handsome immediate cash profit, while yet retaining full control of the enterprise. This they did in the following manner: they realized $74,250,000 in cash (gross, without deduction for marketing

[1] George B. Hassett in the *Detroit News* of April 1, 1925.

[2] Announcement of Clarence L. Dillon, Associated Press of April 8, 1925.

[3] This sum represents dividends paid only between 1921 and 1924; the previous dividend disbursements are not known.

expense) from the sale of $75,000,000 of the Company's six per cent debenture bonds, which were offered at $99 and interest; they realized $85,000,000 more in cash (gross) from the sale of 850,000 shares of no-par value, non-voting, preference stock bearing cumulative dividends of $7 a share, and 850,000 shares of no-par value, non-voting, Class A common stock, which were sold at the rate of one share of each for a joint price of $100; and they retained for themselves and their associates 650,000 shares of Class A common stock and the entire issue of 500,000 shares of Class B common stock, which latter class was given sole voting power in the Corporation.[1] In other words, the investing public, which absorbed the offerings with surprising alacrity,[2] paid $159,250,000 in cash for the bonds, preferred stock, and 56.67 per cent of the non-voting common stock of Dodge Brothers, Inc., while the promoters and underwriters compensated themselves with 57.5 per cent of the Corporation's entire common stock, including *all* of its voting stock.

The prospectuses issued by Dillon, Read & Co. frankly declared that the preference and common stocks of the Company were being issued 'almost entirely against the established earning power.' Under ordinary procedure, the balance-sheet of the Company would have reflected this fact by containing a large valuation for 'good-will' and other intangible assets; and such a treatment would have afforded a minimum of deception. Instead, however, the bankers took full advantage of the opportunities for disguise made possible by the legalization of 'no-par value' securities; and, as a result, they were able to present an initial balance-sheet for the Company that contained a valuation of only one dollar for intangible assets. This they effected by placing such arbitrarily low nominal values upon the Company's capital stocks as to reduce the total nominal capital liabilities to a figure consonant with the value of the net physi-

[1] Cf. prospectuses of Dillon, Read & Co. issued in April, 1925, and their announcements, through the Associated Press, of April 10 and 11, 1925.

[2] Cf. Associated Press reports of April 10 and 11, 1925.

cal assets. In other words, instead of inflating property values by the insertion of a large 'good-will' item, they deflated the capital liabilities to only a fraction of their market value. Thus, the preference and Class A common stock sold to investors for $85,000,000 were carried on the books at a total value of only $935,000! The preference stock was given a book value of $1 a share; the two classes of common stock, 10 cents a share. Hence, while the asset side of the Dodge Brothers balance-sheet is innocent of the deception supposed to inhere in the inclusion of intangible items, the liability side is highly (though not technically) misrepresentative of the true state of affairs. Perhaps one reason for the adoption of this procedure was a desire to minimize the apparent quantity of securities obtained by the bankers for their promotion and underwriting services: the 650,000 shares of Class A common stock and the 500,000 shares of Class B common stock that they received, constituting a clear majority of the entire common-stock issues, were given a total book value of $115,000!

The balance-sheet of Dodge Brothers, Inc., of Maryland, at the beginning of its operations was substantially as follows:[1]

ASSETS

Real estate, plant and equipment, after allowance for depreciation	$47,619,687
Inventories	16,014,478
Accounts receivable	10,153,923
Cash	13,621,440
Marketable securities	12,632,480
Secured notes receivable	1,150,000
Land contracts receivable	1,067,054
Investments in subsidiaries including accrued surplus	412,733
Prepaid insurance	94,698
Good-will	1
	$102,766,494

[1] General balance-sheet as of April 1, 1925, giving effect to acquisition of the Michigan corporation and to the proposed issues of securities; the new company formally opened its books on May 1, 1925. Cf. prospectuses issued by Dillon, Read & Co.

LIABILITIES

Six per cent sinking fund gold debenture bonds	$75,000,000
Preference stock, no-par value; cumulative preferred dividends of $7 a share annually; 850,000 shares	850,000
Common stock of Class A, no-par value; issued, 1,500,000 shares; additional 1,035,000 shares authorized for conversion of debenture bonds	150,000
Common stock of Class B, no-par value; issued, 500,000 shares	50,000
Capital surplus	4,608,682
Accounts payable and accruals	14,241,074
Dealers' deposits	591,410
Remainder of 1924 Federal income taxes	1,832,508
Reserve for contingencies and for Federal income tax	5,442,820
	$102,766,494

We have noted that only the Class B common stock was given voting power; in other respects, both classes of common stock were granted equal rights. The preference stock, which was made redeemable at $105 a share upon sixty days' notice at the option of the Company, was given no measure of even contingent control. The debenture bonds were made convertible into Class A common stock at the option of the holders until a maximum of $30,000,000 had been so converted. For this purpose, the Class A common stock was to be valued at $30 a share for the first $5,000,000 of debentures converted; and at $35, $40, $50, $60, and $70, a share, respectively, for the succeeding blocks of $5,000,000 of debentures converted.

The operations of Dodge Brothers, Inc. (Maryland), in 1925 were highly satisfactory, substantial gains in output, financial volume of sales, and in profits being recorded over those of the predecessor company in 1924. In 1926, further gains in output and sales were made, though profits declined slightly.[1] Net profits applicable to capital stock were equal to $16.17 and $25.40 a share of the preference stock in the last eight months of 1925 and the calendar year of 1926, respectively; leaving $4.02 and $6.46 a share, respectively, available for the common stock. Under the

[1] Annual reports for 1925 and 1926.

impetus of these large earnings, more than $15,000,000 of debentures were converted into Class A common stock, despite the fact that no dividends had yet been paid on the latter. The reinvested profits of the Corporation during 1925 and 1926 totaled $25,571,389.

On October 1, 1925, the Company acquired a 51 per cent interest in Graham Brothers, Inc., which had long employed a Dodge Brothers engine in the commercial vehicles that it manufactured; and on May 1, 1926, the remaining stock in this company was purchased, giving rise to an issue of

TABLE 47. OUTPUT, SALES, PROFITS, REINVESTED PROFITS, AND NET WORTH OF DODGE BROTHERS, INC., BY YEARS *

YEAR [a]	OUTPUT	NET SALES	PROFITS [b]	PROFITS REINVESTED [c]	NET WORTH [d]
1914.....					$5,000,000
1915.....	17,959	$202,008,203	(a)	$266,250	5,266,250
1916.....	199,344		(a)	6,774,803	12,041,053
1917.....			(a)	14,521,229	26,562,282
1918.....	85,459	73,768,885	(a)	3,280,399	30,842,681
1919.....	121,010	$120,970,810	$24,194,352	14,985,318	45,827,999
1920.....	145,389	161,002,512	18,601,780	18,551,732	64,379,731
1921.....	92,476	83,666,284	2,801,370	4,118,889 (d)	60,260,842
1922.....	164,037	130,625,774	19,054,098	6,582,951 (d)	53,677,891
1923.....	179,505	141,332,685	11,590,637	10,083,606	63,761,497
1924.....	222,236	191,652,446	19,965,440	16,897,185	(a)
1925.....	255,322	216,841,368	28,698,846	9,841,969	92,055,691
1926.....	331,764	252,997,484	27,793,673	15,729,419	114,978,610
				$100,230,070	

(a) Unavailable.
(d) Deficit.

[a] Dodge Brothers, Inc., was first incorporated in Michigan on July 17, 1914. Figures for 1915 and 1916 are for the fiscal years ended June 30; the others, for calendar years; except that the output figure for 1916–17 is for the thirty months ended December 31, 1917, and the sales figure for 1915–16–17, for the forty-two months ended on that date.

[b] Net profits before deductions for federal taxes and (after 1924), interest on indebtedness.

[c] Up to 1925, these figures represent merely the net gain or loss in capital and surplus as revealed by the Company's annual reports to the Michigan Secretary of State; hence the figures reflect surplus adjustments as well as reinvested profits. Except for the original investment of $5,000,000, and for $8,250,000 more borrowed by the successor company in 1926, the growth in the net assets of the enterprise took place entirely through reinvestment of earnings and through appreciation in the value of properties.

[d] Up to 1925, these figures represent the net equities applicable to capital stock; in 1925 and 1926, they represent the equities of bondholders and noteholders, as well. In both cases, they represent only the tangible book equities: the enterprise was sold in 1925 for a net cash price of $146,000,000; hence the net worth at the end of 1925 and 1926, representing only tangible assets, is understated.

* Compiled from the annual reports of the Company and its predecessor, and from prospectuses issued by Dillon, Read & Co.

$8,250,000 of five per cent notes maturing serially in three years.[1] In 1926 and 1927, Dodge Brothers' four-cylinder, low-priced product was radically redesigned, and, in addition, the Company entered the $1500 'price-class' with a series of six-cylinder automobiles. And in 1928, the Company introduced a third line of cars, the 'Victory Six,' to occupy an intermediate price position ($1095) between its 'Senior Six' and its four-cylinder line ($875).

The nominal net worth of Dodge Brothers, Inc., on December 31, 1926, as measured by the book equities of its stockholders, bondholders, and noteholders, was $114,978,-610. If we go behind the formal book figures, and measure the net worth by the price paid for the predecessor company, plus subsequent capital additions derived from reinvested profits and from the sale of $8,250,000 of three-year notes, the figure becomes $193,821,389. All but $13,250,000 of either total has been derived from reinvested profits and from appreciation in the value of the tangible and intangible assets of the enterprise.

Table 47 presents a summary of the output, financial volume of sales, profits, reinvested profits, and net worth, by years, of the original company and its successor.

3. The Packard Motor Car Company

The Packard Motor Car Company, through its predecessor of the same name, is one of the oldest of American automobile manufacturers, the original company having been founded in 1900. The enterprise has confined its efforts to the production of relatively expensive vehicles and motors of exceptionally high quality; and, through its subsidiaries, it has engaged to a substantial extent in the wholesale and retail marketing of its products. In consequence, the Company's capital requirements have been relatively greater than those of other automobile producers.

The present Company was incorporated in Michigan on September 3, 1909, to succeed a West Virginia corporation

[1] Annual reports for 1925 and 1926.

of the same name. The latter had been formed on October 24, 1900; in 1903, it had come into the control of a group of Detroit capitalists, who transferred the business from Warren, Ohio, to Detroit;[1] the paid-in capital at this time was $400,000, all represented by common stock.[2] Shortly after its removal, the Company sold an issue of $250,000 of five-year notes, the purchasers of which received a bonus of $250,000 par value of common stock.[3] In the next five years, through the reinvestment of profits, the net worth of the enterprise increased to $5,842,869. The West Virginia corporation was now dissolved, and its stockholders were given $160 par value of preferred, and $160 par value of common, stock in the newly organized Michigan company for each share of common stock of the predecessor.[4]

The Michigan corporation started with a capitalization of $10,000,000, evenly divided between common and preferred stock. Except for the original investment of $400,000, all of its net worth at this time had been derived from the reinvested profits of its predecessor. In March, 1910, the Company sold to Hayden, Stone & Co. $250,000 par value of preferred stock, accompanied by a bonus of an equal amount of common, these securities having come into its treasury from the treasury holdings of the West Virginia Company.[5] In the following month, a group of the Company's stockholders sold $1,000,000 par value of preferred stock to William A. Read & Co., who marketed it at $108 a share.[6]

Because the quality of its product required the direct production of many of the components, the Company was frequently pressed for additional capital. Early in 1912, it

[1] Henry B. Joy, R. A. and F. M. Alger, P. H. McMillan, and T. H. and J. S. Newberry, principally. Cf. annual report for 1903 to the Michigan Secretary of State.

[2] From data compiled by the writer from the books of the Company, through the courtesy of its officers.

[3] *Ibid.* This sum was charged against the income of 1904.

[4] *Ibid.* [5] *Ibid.*

[6] Cf. Doolittle, *op. cit.*, p. 291, and annual report for 1910.

sold $2,000,000 of five-year debenture notes; an additional $1,000,000 was sold in 1914; two years later, $3,000,000 par value of preferred stock was marketed. Later in the same year (1916), in order to refund its maturing note-issue and to provide further working capital, the Company issued $5,000,000 of three-year five per cent notes; and in June, 1919, it sold an additional $7,500,000 par value of preferred stock (the authorized limit of which had been raised to $20,000,000), using part of the proceeds to retire the $5,000,000 note-issue maturing October 15, 1919.[1] The crisis and depression of 1920–21 forced it to borrow $10,000,000 more, eight per cent debenture bonds being issued. The rapid recovery of the two years following, however, enabled the Company to call the bonds for redemption on April 14, 1923.

Marked improvements in manufacturing efficiency, the market success of its new six- and eight-cylinder automobiles, and substantial increases in the demand for its aviation and marine motors, enabled the Company to expand sharply the volume of its business in 1925 and 1926. The net profits of 1925 reached $12,191,081, as compared with profits of $4,805,175 during the year previous; and those of 1926 totaled $15,843,587. Throughout 1925, the Company purchased its preferred stock in the open market, and, at the end of the year, it called in the outstanding balance at a premium of $10 a share, these measures requiring a cash expenditure of $12,780,447.[2]

The net worth of the Packard Motor Car Company on August 31, 1926, was $46,390,944. The gross reinvested profits of the enterprise between 1903 and 1926 aggregated $54,014,634, or some $7,600,000 more than its present net worth. The difference is accounted for principally by the retirement of the original preferred stock of 1909, and of subsequent issues, through reinvested profits. In addition, the enterprise paid out cash dividends of more than $35,000,000 between 1903 and 1926. The capital structure of the

[1] From the Company's annual reports. [2] *Ibid.*

TABLE 48. OUTPUT, NET SALES, NET PROFITS, AND NET WORTH OF PACKARD MOTOR CAR COMPANY, BY YEARS *

YEAR [a]	OUTPUT [b]	NET SALES [c]	NET PROFITS [d]	NET WORTH [e]
1903				$486,949
1904	192	$472,721	$298,662 (d)	188,287
1905	503	1,425,626	216,137	339,424
1906	803	2,711,613	721,569	930,993
1907	1,188	4,915,169	1,386,063	2,122,056
1908	1,484	6,005,399	1,412,832	3,252,088
1909	2,726	9,818,843	2,879,131	5,842,869
1910	4,318	14,969,000	2,776,951	11,927,612
1911	3,745	11,516,000	1,406,410	12,984,022
1912	4,559	14,460,000	2,182,376	11,198,784
1913	5,242	15,076,000	2,157,472	13,006,256
1914	4,415	12,639,000	1,141,564	13,863,120
1915	7,923	15,547,000	3,166,478	16,679,598
1916	18,572	35,495,000	6,206,420	25,038,390
1917	19,745	40,498,453	5,400,691	28,953,471
1918	21,280	50,492,362	5,616,702	33,314,791
1919	12,937	55,180,656	5,433,634	44,333,180
1920	21,650	58,894,525	6,276,863	47,662,272
1921	11,153	30,822,812	987,366 (d)	42,598,796
1922	16,632	37,988,000	2,115,828	43,679,338
1923	22,930	55,670,465	7,081,879	47,122,424
1924	16,153	46,003,679	4,805,175	44,962,943
1925	24,246	60,475,990	12,191,081	38,940,538 [f]
1926	34,000	77,363,954	15,843,587	46,390,944

(d) Deficit.

[a] For fiscal years ended August 31.

[b] Of passenger and commercial vehicles; production of latter was discontinued in 1923.

[c] Includes receipts from sales of airplane and marine engines.

[d] Net profits applicable to capital stock.

[e] Net assets applicable to capital stock at end of fiscal period.

[f] Decrease occasioned by retirement of preferred stock.

* Compiled from the books and annual reports of the Company, except that a number of the output figures were obtained from secondary sources, chiefly *Moody's Manual of Industrials*.

Company at the end of 1926 included only common stock and surplus.

In spite of its consistent policy of reinvesting a substantial proportion of its earnings, the Packard Company, until

TABLE 49. DISPOSITION OF EARNINGS OF PACKARD MOTOR CAR COMPANY, BY YEARS *

YEAR [a]	NET PROFITS [b]	COMMON DIVIDENDS	PREFERRED DIVIDENDS	PROFITS REINVESTED [c]
1904.....	$298,662 (d)			$298,662 (d)
1905.....	216,137	$65,000		151,137
1906.....	721,569	130,000		591,569
1907.....	1,386,063	195,000		1,191,063
1908.....	1,412,832	282,800		1,130,032
1909.....	2,879,131	288,350		2,590,781
1910.....	2,776,951	298,572	$261,250	2,217,129
1911.....	1,406,410		350,000	1,056,410
1912.....	2,182,376		350,000	1,832,376
1913.....	2,157,472		350,000	1,807,472
1914.....	1,141,564		350,000	791,564
1915.....	3,166,478		350,000	2,816,478
1916.....	6,206,420	395,602	455,000	5,355,818
1917.....	5,400,691	910,636	560,000	3,930,055
1918.....	5,616,702	710,382	560,000	4,346,320
1919.....	5,433,634	1,539,245	560,000	3,334,389
1920.....	6,276,863	1,483,144	1,028,297	3,765,422
1921.....	987,366 (d)	297,128	1,049,282	2,333,776 (d)
1922.....	2,115,828		1,035,286	1,080,542
1923.....	7,081,879	2,495,871	1,029,322	3,556,686
1924.....	4,805,175	2,852,424	1,140,332	812,419
1925.....	12,191,081	4,746,046	686,993	6,758,042
1926.....	15,843,587	8,302,221		7,541,366
	$89,132,815	$24,992,421	$10,115,762	$54,024,632
Less original preferred stock retired.....				$5,000,000
Less surplus adjustments.....				3,033,688
				$45,990,944

(d) Deficit.

[a] Fiscal years ended August 31.
[b] Net profits applicable to capital stock, before special surplus charges.
[c] Before special surplus charges.
* Compiled from the annual reports of the Company to its stockholders and to the Michigan Secretary of State, and from the Company's books.

very recently, has been forced to resort to the financial markets fairly frequently. As has been suggested, both the fixed- and working-capital requirements of this Company

have been relatively greater than those of other automobile producers because (1) it has specialized in the production of high-priced vehicles, the manufacture of which permits a slower rate of inventory turnover and a lesser reliance upon the products of independent parts-makers; and (2) it has undertaken the wholesale and retail marketing, through subsidiaries, of a substantial proportion of its output (35 per cent in 1917 and 40 per cent in 1921 [1]), which policy has prevented it from realizing cash for its product immediately upon production, in contrast with the policy of most other automobile producers.

The results of the operations of the Company and its predecessor, by years, are summarized in Tables 48 and 49.

4. The Nash Motors Company

The Nash Motors Company is an example of a comparatively recent entry into the automobile-manufacturing business that has attained a position of considerable importance through an expansion financed entirely out of reinvested profits.

In May, 1916, James J. Storrow and Charles W. Nash, formerly chairman of the board of directors and president, respectively, of the General Motors Company, purchased control of the Thomas B. Jeffery Company, of Kenosha, Wisconsin, for which they paid about $5,000,000.[2] On July 29, 1916, they organized the Nash Motors Company, incorporated in Maryland, to which they transferred the assets and business of the Jeffery company in return for $5,000,000 par value of preferred stock and 49,990 shares of no-par value common stock; the remaining ten shares of the authorized common stock were sold for $500 cash.[3] The Nash Motors Company started operations with an invested

[1] Cf. annual reports for 1917 and 1921.

[2] From data given to the writer by Mr. Storrow in an interview in New York on August 27, 1925.

[3] Listing application of Nash Motors Company, July 1, 1922, to New York Stock Exchange.

TABLE 50. OUTPUT, NET SALES, NET PROFITS, AND NET WORTH OF NASH MOTORS COMPANY, BY YEARS *

YEAR [a]	OUTPUT	NET SALES	NET PROFITS [b]	NET WORTH [c]
1916.....				$5,875,851
1917.....	12,179	$16,761,795	$2,027,784	7,466,134
1918.....	21,019	41,072,304	1,473,638	7,553,831
1919.....	29,841	41,754,094	5,089,036	11,761,367
1920.....	40,984	57,185,767	7,007,471	17,531,838
1921.....	20,841	25,428,297	2,226,078	17,928,095
1922.....	40,458	40,237,765	7,613,246	24,137,172
1923.....	56,569	58,590,252	9,280,032	26,156,587
1924.....	53,135	57,283,891	9,280,541	30,848,165
1925.....	93,397	97,821,157	16,256,216	34,718,272
1926.....	137,376	131,174,855	23,346,306	38,563,350

[a] Fiscal years ended November 30.
[b] Net profits applicable to capital stock.
[c] Net assets applicable to capital stock at end of fiscal period, except that 1916 figure is that of original net worth.
* Compiled from the annual reports of the Company and from data given to the writer by Mr. W. H. Alford, vice-president of the Company.

capital of $5,875,851 (all tangible assets), most of which had been accumulated through the reinvested profits of the Jeffery company and its predecessors: the reinvested profits of the Jeffery enterprise had totaled $4,696,349 by May 31, 1916.[1]

Entering the most competitive of automobile price-classes, that of medium-priced vehicles, the Nash Motors Company quickly became one of the most successful of American automobile producers. In 1919 and 1920, the Company realized $460,000 from the sale of 4600 shares of common stock to its employees; but in the same period it retired $500,000 par value of its preferred stock.[2] In the next two years, $1,000,000 more of the latter was retired, and on February 1, 1923, the remainder of the original issue was redeemed at $110 a share.[3] On December 28, 1922, in the meantime, the Company issued $16,380,000 par value of new seven per cent preferred stock and 218,400 shares of no-par value

[1] *Ibid.* [2] Annual reports for 1919 and 1920.
[3] Annual reports for 1921 to 1926, inclusive.

TABLE 51. DISPOSITION OF NET PROFITS OF NASH MOTORS COMPANY, BY YEARS *

YEAR [a]	NET PROFITS [b]	PREFERRED DIVIDENDS	COMMON DIVIDENDS	PROFITS REINVESTED [c]
1917.....	$2,027,784	$437,500		$1,590,284
1918.....	1,473,638	350,000	$1,050,000	73,638
1919.....	5,089,036	336,000	832,000	3,921,036
1920.....	7,007,471	315,000	872,000	5,820,471
1921.....	2,226,078	288,750	873,600	1,063,728
1922.....	7,613,246	262,500	873,600	6,477,146
1923.....	9,280,032	1,207,850	1,638,000	6,434,182
1924.....	9,280,541	1,103,263	2,730,000	5,447,278
1925.....	16,256,216	1,051,309	4,368,000	10,836,907
1926.....	23,346,306	140,908	10,920,000	12,285,398
	$83,600,348	$5,493,080	$24,157,200	$53,950,068
Add preferred stock dividend redeemed...			17,007,587	
Deduct same.....				17,077,587
Deduct original preferred stock retired..				5,000,000
Add sundry surplus additions, net.....				355,018
			$41,234,787	$32,227,499 [d]

[a] Fiscal years ended November 30.
[b] Net profits applicable to capital stock.
[c] Before special surplus adjustments.
[d] Net profits reinvested after all deductions.
* Compiled from the annual reports of the Company.

common stock as a dividend to its common stockholders: three shares of preferred stock of $100 par value each and four shares of no-par value common stock were distributed for each share of the original common stock.[1] About one-half of this new issue of preferred stock was retired out of earnings during the next three years, and the remainder was called for redemption at $105 a share on February 1, 1926.[2] Some two weeks after this date the common stockholders received a stock dividend of 900 per cent in common stock.[3]

The net worth of the Nash Motors Company on November 30, 1926, was $38,563,350. Virtually all of the original invested capital had been repaid by the retirement of the

[1] Annual reports for 1921 to 1926, inclusive. [2] *Ibid.* [3] *Ibid.*

initial issue of preferred stock. During the ten years of the Company's operations, it had earned net profits totaling $83,600,348; it had disbursed to its stockholders, in direct cash dividends and through the redemption of the preferred stock issued as a common-stock dividend, about $46,650,000. The earnings of the Company, therefore, were more than sufficient to finance its fixed-capital expansion. The ease with which its working-capital requirements have been met is reflected by the fact that none of its annual statements has contained any evidence of ordinary commercial borrowing from banks.

The results of the Company's operations, by years, are summarized in Tables 50 and 51.

5. The Hudson Motor Car Company

The Hudson Motor Car Company affords another example of a leading automobile-manufacturing enterprise whose present invested capital has been built up almost entirely through the reinvestment of profits.

The Company was incorporated in Michigan on February 24, 1909, to succeed to a partnership formed a few months earlier by a group of men who had previously been connected with the Olds Motor Works and the E. R. Thomas Company.[1] Nearly all of the original stockholders are still active in the direction of the enterprise. The Company started with $15,000 in cash; models, patterns, and dies valued at $25,000; and subscriptions later paid in cash aggregating $58,990.[2] Its initial product was a medium-priced passenger car; in 1917, a lower-priced vehicle, the 'Essex,' was added.

[1] The partners, and the original stockholders of the Hudson Motor Car Company were: Roy D. Chapin, Hugh Chalmers, H. E. Coffin, R. B. Jackson, F. O. Bezner, J. J. Brady, J. L. Hudson, and Lee Counselman. Cf. the Company's listing application to the New York Stock Exchange, June 7, 1922.

[2] *Ibid.*; cf. also articles of incorporation filed with the Michigan Secretary of State.

Except for $106,000 par value of capital stock sold to its employees in 1913, and 10,000 shares of no-par value stock given to its factory manager in 1925 for 'cash and services,'[1] the expansion of the Company has been financed entirely through reinvested profits. This statement is nominally inaccurate. Essex Motors, a Michigan corporation, was incorporated by the stockholders of the Hudson Company on September 16, 1917, 'to satisfy a demand from the distributors of the Hudson Motor Car Company for a small and more inexpensive car. . . .'[2] The Essex car was manufactured in the Hudson plants, but the latter Company did not formally acquire the capital stock of Essex Motors in its own name until May 27, 1922, when it issued 200,000 shares of its no-par value common stock for the same.[3] Prior to this consolidation, the operations of the Essex company, which had started with a capital of $250,000 in cash and $250,000 in 'property,' had resulted in a total net loss of $732,794.[4]

The Hudson Motor Car Company was one of the first to anticipate the recent market trend toward enclosed rather than open automobiles. By reason of marked economies in manufacture, it was able to market 'closed' models of both of its lines of cars at relatively low prices, its Essex car, in particular, becoming an important contender in the low-price class. Hence, in very recent years, the volume of its business has expanded considerably.

The net worth of the Hudson Motor Car Company on December 31, 1926, was $43,078,016, nearly all of which had been derived from reinvested profits. Up to this date the net profits of the Company had aggregated $65,270,534, of which $22,817,854 had been disbursed in cash dividends, and $42,452,680, retained in the business. The capital structure of the Company has consisted only of common stock, the

[1] Judging from the income accounts and balance-sheets of the Company for 1924 and 1925, the Company received $125,000 for the 10,000 shares.

[2] Listing application of the Hudson Motor Car Company to the New York Stock Exchange, June 7, 1922.

[3] *Ibid.* [4] *Ibid.*

TABLE 52. OUTPUT, NET PROFITS, DIVIDENDS, REINVESTED PROFITS, AND NET WORTH, OF HUDSON MOTOR CAR COMPANY, BY YEARS *

YEAR [a]	OUTPUT [b]	NET PROFITS [c]	CASH DIVIDENDS	REINVESTED PROFITS [d]	NET WORTH [e]
1909.....					$98,990
1910.....	4,107	$587,355	$50,000	$537,355	662,576
1911.....	5,448	451,643		451,643	1,090,288
1912.....	5,449	822,415	205,000	617,415	1,689,811
1913.....	6,221	840,741	220,000	620,741	2,246,782
1914.....	7,199	1,256,260	37,800	1,218,460	3,192,529
1915.....	10,918	1,427,517	576,400	851,117	4,036,115
1916.....	33,186	2,734,947	192,000	2,542,947	7,282,678
1917.....	21,320	1,492,511	521,292	971,219	8,662,897
1918.....	13,343	1,226,601	475,193	751,408	9,331,057
1919.....	39,286	2,287,104	516,992	1,770,112	11,189,259
1920.....	48,439	1,156,452	715,705	440,747	11,629,658
1921.....	25,415	915,850		915,850	12,495,547
1922.....	61,233	7,242,677	1,761,489	5,481,188	18,480,475
1923.....	88,184	8,003,624	3,601,255	4,402,369	22,660,979
1924.....	128,664	8,073,459	3,781,394	4,292,065	26,703,044
1925.....	263,937	21,378,504	4,974,562	16,403,942	43,001,985
1926.....	244,667	5,372,874	5,188,772	184,102	43,078,016
		$65,270,534	$22,817,854	$42,452,680	

[a] For fiscal periods ended as follows: 1910 and 1911, June 30; 1912, eleven months ended June 8; 1913, thirteen months ended June 30; 1914, eleven months ended May 31; 1915, May 31; 1916, eighteen months ended December 5; remainder, for years ended November 30, except that the 1926 figures are for the thirteen months ended December 31, 1926.

[b] Includes output of Essex Motors prior to consolidation (1919, 1920, 1921).

[c] Net profits applicable to capital stock; before special surplus adjustments.

[d] Exclusive of sundry surplus adjustments.

[e] Net assets applicable to capital stock at end of fiscal period.

* Compiled from the reports of the Company to the Michigan Secretary of State, from its published annual reports, and from data compiled for the writer by and through the courtesy of Mr. E. W. Sheldrick, accounting manager of the Company.

number of shares of which has been increased time and again by stock dividends. In April, 1922, several of the larger stockholders sold 400,000 shares of no-par value common stock to the Bankers Trust Company (New York) for $7,000,000;[1] this block was subsequently sold to the public at

[1] Statement of Hudson Motor Car Company before the Michigan Securities Commission, April 29, 1922.

$20 a share; and on June 14, 1922, the stock of the Company was listed on the New York Stock Exchange, whereby participation in the ownership of the Company was thrown open to the public.

The results of the Hudson Company's operations, by years, so far as the data are available, are summarized in Table 52.

6. The Reo Motor Car Company

The Reo Motor Car Company is a long-established automobile-producing enterprise which has reached its present size by relatively gradual growth. During the more than twenty-two years of its existence it has omitted the payment of cash dividends in only a single year; and its present net worth, except for an original investment of $170,000 in cash and $130,000 in 'property,'[1] has been built up exclusively out of reinvested profits.

The Company was named after Ransom E. Olds, of Lansing, Michigan, who, we have observed, was one of the pioneer American automobile inventors and manufacturers. In 1904, after severing his connection with the Olds Motor Works, of Detroit, Olds had decided to retire from the automobile business.[2] He was investigating peat fields in northern Michigan when he received a telegram from a number of Lansing business men inviting him to head a new automobile enterprise in which he would be given a controlling interest for his services. The Reo Motor Car Company was incorporated in Michigan on August 17, 1904; Olds was given $50,000 par value of preferred stock, which was soon converted into common, and $260,000 par value of common stock; the remaining stock, $240,000 par value of common,

[1] The 'property' consisted of the patents, inventions, models, etc., of R. E. Olds, valued at $105,000, and $25,000 of real estate. Cf. articles of incorporation of the R. E. Olds Company, the original name of the enterprise.

[2] From data obtained from Mr. Olds in an interview in Lansing, Michigan, December 24, 1924.

was subscribed by Lansing citizens, who, however, were eventually called upon to pay only fifty per cent of their subscriptions.[1]

Whereas Olds had previously been the first to produce a low-priced automobile — the 'Merry Oldsmobile' — he now contented himself with the more limited market open to a medium-priced vehicle. The Company prospered steadily, though not extravagantly. A large proportion of its earnings, particularly in its earlier years, was paid out in dividends, but its reinvested profits alone were sufficient to finance a gradual, then more marked, expansion. On October 8, 1910, the Company organized a subsidiary, the Reo Motor Truck Company, to produce commercial vehicles; in 1913, it distributed to its stockholders, *pro-rata*, its holdings in this subsidiary; but in 1916, it reacquired the stock of the latter, paying share for share in its own common stock.[2] Like only a few other automobile producers, the Reo Company established a number of retail sales branches, separately incorporated, in various cities. In very recent years, the Company's truck business has exceeded that of its passenger cars;[3] but in 1927 it redesigned its passenger cars and added a new line of lower-priced automobiles (retailing at prices just above $1000), with a resultant large increase in the popularity of its passenger products.

In its twenty-two years of operations up to August 31, 1926, the Reo Motor Car Company obtained aggregate net profits of $48,931,712;[4] it paid out $21,903,429 to its stockholders;[5] and, including the reinvested gains of its truck subsidiary prior to the consolidation, its reinvested profits

[1] Cf. articles of incorporation and annual reports filed with the Michigan Secretary of State.

[2] Annual reports for 1914 and 1917.

[3] Between 1920 and 1926, inclusive, the Company produced 95,153 trucks and 73,152 passenger automobiles.

[4] Exclusive of sundry income and surplus adjustments, and exclusive of the profits of the Reo Motor Truck Company, 1913–16.

[5] Exclusive of dividends paid by the Reo Motor Truck Company.

TABLE 53. OUTPUT, NET SALES, NET PROFITS, AND NET WORTH OF REO MOTOR CAR COMPANY, BY YEARS *

YEAR [a]	OUTPUT [b]	NET SALES [c]	NET PROFITS [d]	NET WORTH [e]
1904	(a)			$130,000
1905	(a)	$955,905	$323,457	380,217
1906	(a)	1,848,192	459,824	866,787
1907	(a)	2,919,250	767,429	1,123,716
1908	(a)	3,216,981	810,812	1,189,329
1909	5,728	4,199,805	1,334,727	2,182,076
1910	6,588	5,534,902	1,502,889	2,500,395
1911	5,728	4,360,216	543,301	2,798,999
1912	6,342	5,030,264	453,322	3,381,150
1913	7,647	5,462,592	1,069,552	3,522,842
1914	12,745	11,964,609	2,535,592	4,694,082
1915	22,247	12,201,847	2,569,720	6,661,802
1916	27,811	18,908,717	3,786,934	9,300,286
1917	30,246	24,904,301	1,868,761	11,584,165
1918	20,158	20,717,257	1,859,520	12,432,078
1919	16,483	19,353,574	1,564,687	13,327,584
1920	32,800	43,381,506	4,622,801	16,684,560
1921	22,342	31,783,400	1,022,232	16,722,917
1922	23,152	29,322,524	3,140,530	19,594,414
1923	31,880	38,322,047	5,603,479	22,819,007
1924	28,681	35,863,795	3,412,041	23,990,146
1925	32,650	42,069,073	5,422,182	26,935,504
1926	34,542	44,059,627	4,257,920	27,993,424

(a) Unavailable

[a] Figures for output, sales, and profits are for the fiscal periods ended August 31, except that those for 1911 are for the thirteen months ended September 30, 1911; those for 1912, for the year ended September 30, 1912; those for 1913, for the eleven months ended August 31, 1913; those for 1914, for the fourteen months ended October 31, 1914; and those for 1915, for the ten months ended August 31, 1915. The net-worth figures represent the net equities of the stockholders as disclosed in annual reports to the Michigan Secretary of State as of the following dates: 1904, August 16; 1905, September 7; 1906–1913, inclusive, December 31; 1914, October 31; 1915–1926, inclusive, August 31.

[b] Figures for the years up to 1909 are not available.

[c] Figures for 1925 and 1926 represent 'gross' sales.

[d] Net profits applicable to capital stock, except that certain figures for the earlier years variously do or do not include small income and surplus adjustments.

[e] Net assets applicable to capital stock; includes intangibles up to $162,656 prior to 1913; none thereafter.

* Most of the data in this table were compiled for the writer by and through the courtesy of Mr. George L. Brown, auditor of the Company; the remainder were obtained from the annual reports of the Company to the Michigan Secretary of State or to its stockholders.

TABLE 54. DISPOSITION OF NET PROFITS OF REO MOTOR CAR COMPANY, BY YEARS *

YEAR [a]	NET PROFITS [b]	CASH DIVIDENDS [c]	REINVESTED PROFITS [d]
1905	$323,457	$50,000	$273,457
1906	459,824	187,500	272,324
1907	767,429	650,000	117,429
1908	810,812	800,000	10,812
1909	1,334,727	1,200,000	134,727
1910	1,502,889	600,000	902,889
1911	543,301		543,301
1912	453,322	400,000	53,322
1913	1,069,552	200,000	869,552
1914	2,535,592	1,050,000	1,485,592
1915	2,569,720	1,050,000	1,519,720
1916	3,786,934	1,218,725	2,568,209
1917	1,868,761	693,725	1,175,036
1918	1,859,520	693,725	1,165,795
1919	1,564,687	693,725	870,962
1920	4,622,801	693,725	3,929,076
1921	1,022,232	693,725	328,507
1922	3,140,530	1,040,587	2,099,943
1923	5,603,479	2,062,992	3,540,487
1924	3,412,041	2,250,000	1,162,041
1925	5,422,182	2,475,000	2,947,182
1926	4,257,920	3,200,000	1,057,920
	$48,931,712	$21,903,429	$27,028,283
Add reinvested profits of Reo Motor Truck Company, financed by the parent company and then consolidated.			930,493
			$27,958,776

[a] Fiscal years as in Table 53.

[b] Net profits applicable to capital stock, before special surplus deductions, but reported somewhat inaccurately for some of the earlier years.

[c] Exclusive of dividends paid by the Reo Motor Truck Company.

[d] Before surplus deductions other than dividends.

* Compiled from the annual reports of the Company to the Michigan Secretary of State and to its stockholders, and from data compiled for the writer by and through the courtesy of Mr. George L. Brown, auditor of the Company.

totaled $27,958,776, or more than ninety-nine per cent of its present net worth.[1]

A summary of the results of the operations of the Company, so far as the data are available, is presented in Tables 53 and 54.

7. The Financing of the Six Producers

The financial practices and policies of the six enterprises reviewed in this chapter are widely representative of virtually all the types of financing employed by successful American automobile producers.

The Studebaker Corporation alone, of the six, started with a relatively large investment in fixed plant — an investment derived, chiefly, from the earnings of the Studebaker wagon and E M F automobile enterprises. Up until 1926, only two of the six companies, the Studebaker and Packard, had found it necessary to resort to the financial markets to meet expanding capital requirements. With the exception of the Dodge enterprise since 1925, they are the only ones, likewise, which have had frequent resort to borrowed funds for long or short term periods. Two of the six had been able to retire original issues of preferred stock out of earnings; two others (and the Dodge Company prior to 1925) had issued only a single type of security, common stock; and the present invested capital of all of them, and very particularly of five out of the six, has been largely derived from reinvested profits.

There is no need to reiterate the conditions that have facilitated the expansion of these companies and of others with so little reliance upon additional capital, either fixed or working, other than that provided by reinvested earnings. It may be repeated that the two enterprises that have looked to outside sources for additional capital at times have been those that sought an early integration of their opera-

[1] Part of the original investment, as well as of subsequent reinvested earnings, has been reduced in the accounts by elimination of intangibles and other surplus charges.

tions. The others, engaging in the direct manufacture of components only as increasing resources permitted, and selling almost exclusively to independent distributors and dealers, have been carried along by the stream of incoming cash and by their reinvested profits.

CHAPTER VI

SUMMARY AND CONCLUSIONS: THE MOBILITY OF CAPITAL

I. SUMMARY

THE purpose of the present study was to answer, within somewhat limited scope, the following question:

> Given the existing organization of industry, and given a new important product, how have the producers of this product come to command the economic resources required for its extensive production?

More particularly, it was purposed to illustrate, by reference to the history of the American automobile industry, some of the specific processes whereby mobility in the employment of capital is effected.

The results of our inquiry require no extended elucidation. We have found that the fixed- and working-capital requirements of automobile manufacture were met, initially, by a wide diffusion of the capital burdens among a host of subsidiary, ancillary, and contributory enterprises; that, through such means, the entrepreneurs of the new industry were enabled to produce a maximum volume of product with a minimum capital contribution of their own. This was made possible, in part, by the large profits of successful automobile producers, profits which permitted them to outbid producers of other goods for the services and resources of materials-suppliers, parts-makers, and marketing enterprises. In part, this shifting and diffusion of capital burdens was facilitated by the technological character of the new product: the automobile made no impossible demands upon the capital equipment, technical process, and business practices of then-existing contributory enterprises.

The expansion of automobile manufacture was financed by a large growth in the capital resources of both the final

producers and their suppliers and distributors. Despite the fact that the latter's resources were not nominally controlled by the automobile producers proper, the effect was much the same as if they had been. Indeed, the producers exercised a considerable measure of even direct control over the business of parts-makers and sales-dealers: uniform retail prices and service policies, to take a single example, were established at the factories for all dealers. Only meager attention has been directed to the sources of the capital expansion of parts-makers and distributing agents, but sufficient evidence has been presented, perhaps, to suggest the important rôle of reinvested profits. The careers of eight of the leading producers of automobiles have been studied in some detail. We have found that the greater part of the growth in their capital resources was derived directly from reinvested profits; and that this source accounts for much the greater part of their present invested capital.

While most of the statistical data presented in this study was obtained from original or official records, large allowances must be made for loose, arbitrary, and divergent accounting practices;[1] and, in a few cases, for the omission of significant data.[2] In consequence, aggregate computations based upon these materials must be subject to some measure of inaccuracy. Nevertheless, the following table, in which the net tangible invested capital at the end of 1926 of each of the eight companies studied is compared with its net aggregate reinvested earnings, gives a rough, though conservative, measure of the extent to which the present tangible capital investment of these producers has been derived from reinvested profits.[3]

[1] Such as lack of distinction between charges applicable to income and to surplus; varying treatment of appreciation; valuation of 'patents,' 'good-will,' and 'investments'; etc.

[2] Chiefly, special surplus charges made in connection with devaluation of 'good-will' and inventories.

[3] No allowance is here made for the reinvested profits of independent enterprises that were later absorbed by automobile producers, the total net worth of such enterprises being treated as new capital contributions;

TABLE 55. NET AGGREGATE REINVESTED PROFITS AS A SOURCE OF PRESENT TANGIBLE INVESTED CAPITAL

COMPANY	TANGIBLE INVESTED CAPITAL [a]	NET AGGREGATE REINVESTED PROFITS [b]
Ford Motor Company	$694,384,502	$694,344,502
General Motors Corporation	593,107,999	306,221,101
Dodge Brothers, Incorporated	114,978,609	101,728,609
Studebaker Corporation	99,226,556	71,797,967
Packard Motor Car Company	46,390,943	45,990,944
Hudson Motor Car Company	43,078,016	42,748,026
Nash Motors Company	38,563,350	32,227,499
Reo Motor Car Company	27,993,424	27,693,424
	$1,657,723,399	$1,322,752,071
Reinvested profits to invested capital	79.79 per cent	

[a] At end of calendar or fiscal year, 1926. Includes equities of minority stockholders in 'consolidated companies,' in the case of General Motors, and equities of bondholders and noteholders, in the case of Dodge Brothers; otherwise denotes net tangible assets applicable to capital stock.

[b] These figures reflect surplus adjustments occasioned by gains and losses not applicable to the operations of any single year, as well as immediate profits reinvested; hence they are not comparable with preceding figures for gross reinvested profits. The present totals represent the difference between original and subsequent capital contributions from outside sources, less amounts of capital stock retired out of earnings, and present tangible invested capital. For reasons previously noted, they are not perfectly accurate.

II. GENERAL CONCLUSIONS

It would be unwise to generalize very broadly on the basis of these findings. The capital requirements of different branches of industry vary greatly and must be met in different ways. Railroad construction and operation, for example, could scarcely be financed in a manner analogous to the financing of the automobile industry. Nevertheless, our investigation has revealed the importance of certain general aspects of the process of capital mobility that are commonly disregarded in the theoretical analysis of this subject.

A. INDIRECT DIVERSION OF CAPITAL

The rôle of profits as a guide to the employment of economic resources is often described only in large and direct terms: large profits serve to attract entrepreneurs and capi-

and, in some cases, fictitious or doubtful assets, acquired probably as a means of stock-watering, are accepted at face value as capital contributions.

talists, and, through them, the material resources required for the production of any good; hence, the productive factors, particularly capital, tend to flow automatically to the industries most needing them, the importance of their need (and the risks involved) being roughly measured by the rate of return offered.

This summary view, while valid in a general way, suggests a directness in capital movements that was certainly lacking in the development of the automobile industry. In the absence of further analysis, it ignores the specialized, concrete, durable character of most capital goods: it implies that capital consists of a liquid *fund* of immediately mobile resources. And it postulates, without examination, the existence of practices and institutions that insure the adequate mobility of capital.

The early classical economists, who were much more empirical in outlook than many of their followers, implicitly recognized the obstacle to capital mobility that inheres in the specialized character of capital goods by distinguishing between 'fixed' and 'circulating' capital. Many later writers, however, intent upon theoretical uniformity, or preoccupied unduly with the easy transfer of liquid funds in the organized financial markets, have brushed over this difficulty by regarding capital as a *fund* of 'free,' 'uninvested' resources. This concept of capital, particularly as developed by J. B. Clark,[1] is useful for many purposes; but, since it *presupposes* the essential mobility of capital, it commonly leads to a complete neglect of the specific means whereby such mobility is in fact effected. Clark's highly valuable work, and the otherwise excellent study by Gustav Cassel, 'The Nature and Necessity of Interest,' among others, suffer from this defect, in the opinion of the present writer.

In more specific analyses of the immediate processes of capital mobility, attention is often confined to two conspicuous sources of capital for new or growing industries: (1) a portion of the temporarily idle capital and credit of

[1] *Essentials of Economic Theory*, particularly chapters XI and XVIII.

business men is held in the form of money and bank deposits, and these, particularly when guided by organized financial institutions, are highly mobile; and (2) new additions to capital, through savings, commonly take the form of money, initially, and in this form such capital too may be readily directed into new profitable channels. As was first emphasized by Walter Bagehot,[1] however, the larger part of a community's capital at any moment is in the form of specialized durable instruments — machines, roads, buildings, etc. — and the essential problem is to explain how capital so embodied may be transferred to new uses. A partial answer was given by Bagehot: concrete capital goods are destructible; the prevailing practice of the business world is to maintain 'capital' intact, however short or long the life of particular machines; this maintenance of 'capital' frequently requires the substitution of new instruments, designed for new uses, for the old ones; and the rate at which particular forms of capital goods are 'used up' is partly determined by the changing forms in which 'capital' is demanded.[2] In the opinion of the late Alfred Marshall, not less than one-fourth of the total stock of capital, 'even in a country in which the prevailing forms of capital are as durable as in England,' must be replaced annually.[3] This great replacement fund, which at one time or another largely takes pecuniary form, makes possible a considerable mobility of capital. The results of the present study, in the opinion of the writer, permit us to extend and to refine this analysis.

The rôle of profits in the direction of productive resources is not limited to the direct attraction of capital to profitable industries. A new or growing industry may divert existing capital resources, through the purchase of materials and sub-products, without formally attracting to it the ownership of these resources; and such indirect diversion of capital to new uses is, in fact, one of the most important means whereby capital is transferred from one employment to

[1] *Economic Studies*, p. 45 ff. [2] *Ibid.*
[3] *Principles of Economics*, 8th ed., p. 592.

another. An enormous proportion of this country's capital is invested in mines, railroads, iron and steel manufacture, textile mills, and other primary industries, as well as in general merchandising and financial establishments, the products and services of which are at the command of all profitable industries. The capital so invested is, in effect, constantly mobile among the various products employing its services. The proportion of such capital that may be diverted to any new good is extremely elastic; it may be increased readily and sharply without formal change of ownership; and such indirect diversion of capital does not require a movement of liquid funds guided by organized financial institutions. Large profits serve in this connection to enable new or growing industries to outbid competitors for the services of capital equipment owned by others, and thus, in effect, though not on the surface, to mobilize such capital for new purposes.

It was in this way, most largely, that the early producers of automobiles met the capital requirements of their product. Lands and buildings were frequently rented rather than purchased; independent enterprises, supplying their own capital equipment, produced virtually all of the components and completed virtually all of the physical assembling; sales of automobiles were made to independent distributors who maintained their own establishments; and, whereas the latter paid cash for the vehicles immediately upon production, the suppliers extended credit to the automobile producers. Thus, the capital burdens of automobile manufacture were largely shifted to, and borne by, owners of capital who remained essentially outside of the new industry. The producers of automobiles were entrepreneurs *par excellence;* they alone were effectively responsible for the product, but their own capital contributions were at a minimum. The new industry readily obtained the services, but not the ownership, of large quantities of capital.

B. Capital Mobility and Risk

This indirect process of capital mobility, which is far more widespread than has been formally recognized, has important effects upon the deterrent influence of risk in the financing of new and speculative industries. The flow of capital into such industries is commonly said to be greatly impeded by the large risks necessarily involved; and many writers appear to assume that the capital available for such industries is limited to the resources of speculatively inclined individuals, or, at any rate, to funds more or less definitely earmarked for speculative purposes. In the case of American automobile manufacture, however, the development of the industry did not wait upon the direct assumption of large risks by the owners of the bulk of the capital that became diverted to its use; and the industry was able to tap far richer sources of capital than the so-called speculative fund.

The explanation of this fact has already been anticipated. The wide distribution of the capital burdens of automobile manufacture involved a considerable diffusion of the risks of the industry, and therefore greatly diminished their deterrent influence. Speculative as the industry appeared, potential producers did not face the necessity of risking large sums of capital in their operations: the immediate manufacture of the product was shared by numerous independent enterprises which supplied the capital required for the manufacturing operations as such, and which assumed the immediate subsidiary risks involved therein. On the other hand, responsibility for the final product, and the essential risks of final design, integration of the purchased components, and factory sales, did not face those who actually, though indirectly, provided the bulk of the capital employed. Resources that would not be directly committed to the fortunes of automobile production proper were nevertheless attracted to and then supplied by hundreds of enterprises engaged in providing materials, components, and sales facilities for the new product. Mobility in the employment of

capital did not in this case require a wholesale assumption of new risks, nor, on the surface, a radical diversion of existing capital. In other words, there was a far greater divorce between the functions of responsibility-taking and capital contribution than is commonly thought possible in new and speculative industries. In consequence, the diversion of capital to the automobile industry was greatly facilitated.

Such distribution of the capital burdens of particular industries, involving a partial diffusion and effective reduction of risks, is far more common than is usually recognized, and accounts for a considerable measure of the actual mobility of capital.

C. Relation to Industrial Technique

The ability to shift and widely distribute the capital burdens involved in the production of any good depends to a large extent upon the relation of the product to the prevailing industrial technique. A product capable of employing materials, machines, buildings, and business institutions in common use will, other things being equal, require less capital on the part of its final producer than one that requires brand new materials, machines and equipment made of metals not now produced, and buildings of great peculiarity in design and construction. In the former case, the producer avails himself of capital resources already existing but owned by others, by purchasing only their current services as these are reflected in the intermediate products that he buys from their owners. In the latter case, while the producer may conceivably induce others to provide and to continue to own the peculiar capital goods that he requires, the probability is vastly greater that he himself will be forced to supply much of the capital necessary for the intermediate operations involved in the production of his product. Different products vary considerably in this respect, but that the former situation is, on the whole, more common than the latter, can scarcely be doubted.

The automobile industry was particularly fortunate in this respect. Partly by reason of the time of its development, and partly by reason of the character of the product, it inherited an industrial technique peculiarly congenial to its requirements. The prior development of the rifle, sewing-machine, carriage and wagon, and other industries, had brought into existence numerous well-established wood- and metal-working enterprises which were equipped with specialized tools and machines for the large-scale manufacture of a wide variety of sub-products. Carriage and wagon manufacture, in particular, was in the hands of a great number of such enterprises. The resources and technique of these producers of components, as well as those of suppliers of primary materials, were easily mobilized for the automobile.

A new product may command capital resources not only by diverting these from other goods, but also by effecting the utilization of hitherto idle utilities residing in existing capital equipment. Such increases in the efficiency of capital are tantamount to absolute additions to the stock of capital; and while they are rarely reflected in pecuniary measurements, they may be of great practical importance, particularly in a period of improving technology. Some of the capital early devoted to automobile production came from the idle resources of machine shops and similar establishments, which added automobile components to their lines of products without, at first, diminishing their output of other goods or increasing their capital equipment. It is often observed that productive capacity is rarely employed to its fullest extent: the actual output of American industry as a whole in 1923, according to the Census of Manufactures, for example, was only 72.2 per cent of the possible output, and in 1921, only 57.1 per cent.[1] The capacity of American automobile factories has been enormously increased in recent years without commensurate additions to the capital employed, through the extensive use of mechanical power, machine-tools, scientific factory management, and other

[1] *Census of Manufactures*, 1923, p. 1201.

such means. Improvements in financial practice that permit the various reserve funds of industry to be reduced in size and given fuller employment, and improvements in transportation that make possible significant reductions in inventories of all kinds, storage facilities, goods-in-transit, etc., similarly release capital for new or extended uses. These considerations are intended to suggest that a community may finance a considerable expansion in the volume and variety of product without a concomitant and proportional increase in the absolute volume of capital employed. There can be little doubt that the great growth of the American automobile industry has been financed by the country as a whole through just such economies, in significant though uncertain measure, rather than entirely through new savings and the diversion of capital from other products.

Speaking broadly, we may say that a wide distribution of capital among industries supplying raw materials, subproducts, and various kinds of services, and an improving technology, facilitate the mobility of capital. The concentration of capital in highly integrated industries, on the other hand, would seem to render capital less mobile. If, twenty-five or thirty years ago, industrial practice had required that each final product be produced by a highly integrated enterprise that directly controlled the sources of the raw materials and all the intermediate manufacturing stages, entrance into the automobile industry necessarily would have entailed a considerable measure of concentrated risk. Indirect diversion of capital, with its attendant diffusion of risks, would have been virtually impossible. In contrast with what has actually taken place, the development of automobile manufacture must have waited upon the direct commitment of large quantities of capital to the major risks of a new industry.

D. Profits and Capital

The striking reliance of the leading automobile producers upon reinvested profits as a source of capital is to be attrib-

uted partly to the difficulty of procuring fresh capital for direct investment in a new industry, and partly to the ability of the controlling stockholders to retain undiminished ownership of their enterprises by indirectly shifting much of the capital burdens to others when expedient. The remarkable extent to which the present invested capital of automobile producers has been derived from their reinvested profits suggests the possible widespread importance of this source of new capital. Any more positive statement of this kind applied to industry generally must necessarily be based upon a wide range of inductive studies; but there is much evidence already to suggest that the importance of this source of capital is very great indeed.[1]

This fact, if generally true, is significant alike for problems of economic theory and for questions of public policy. Do corporate savings commonly entail the same psychic sacrifice that is imputed to individual savings? A substantial measure of retention of profits is fostered in all continuing enterprises by the fear of future reverses and by the desirability of providing against possible changes in products and markets. Such saving takes place automatically, as it were, being firmly grounded in the prevailing standards of judicious corporate administration; and it is interrupted only at times of exceptional reverses. In the case of new or growing industries, moreover, substantial further reinvestment of earnings by the individual enterprises is powerfully fostered because such reinvestment is often needed merely to maintain competitive positions. To the extent that corporate reinvestment of profits is an expected and standard procedure, discounted by investors, the abstinence of the individual investor, while real, is little more voluntary, conscious, or direct than that of the taxpayer, part of whose income is diverted by government to the construction of public buildings, roads, etc.

[1] In 1922, only 50 per cent of the net book profits of American corporations was distributed in dividends, according to Senate Document Number 85, 68th Congress, First Session, *Distributed and Undistributed Profits of Corporations.*

Large as have been the reinvested profits of automobile producers, their cash dividend disbursements have been no less striking. No extreme deprivation of current income on the part of the individual stockholder accompanied the building-up of great corporate surpluses: the payment of substantial cash dividends was the rule from the first. The annual net profits of automobile producers, until very recent years, have borne little relation to the amounts of capital actually risked. The rewards of their initiative might conceivably have been much smaller, and yet have sufficed none the less to attract their energies. It would seem that great corporate profits might be taxed far more heavily than they are now, without gross injustice and without stifling business initiative.

Any policy of heavy taxation of business profits must reckon with ulterior consequences, however. Since profits constitute an important source of capital, any substantial public appropriation of them must result either in a slower accumulation of capital or in a diversion of capital from ordinary industry to publicly owned capital improvements. The latter use of profits taxes might indeed yield indirect, as well as direct, benefits by making possible a more extensive employment of government construction projects as a 'balance wheel' to mitigate the severity of business fluctuations. It is clear, in any event, that there is a close connection between capital accumulation and profits taxation.

It cannot be ignored, moreover, that profits function not only as a stimulus and reward to enterprise, but also as a guide to the employment of economic resources. The ready, if indirect, flow of capital and labor into the automobile industry, for example, took place largely in response to the promise of unusual profits. Had all but a modest rate of return been subject to public appropriation, the diversion of productive resources into the new industry would have been slow and uncertain — unless, indeed, equivalent stimulus had been provided under a policy of centralized regulation of industrial development. In fact, a policy of radical public

appropriation of large business profits would seem to imply some measure of centralized control of business activity, for, under the existing organization of industry, profits constitute the chief guide for, and regulator of, the distribution of productive resources.

THE END

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